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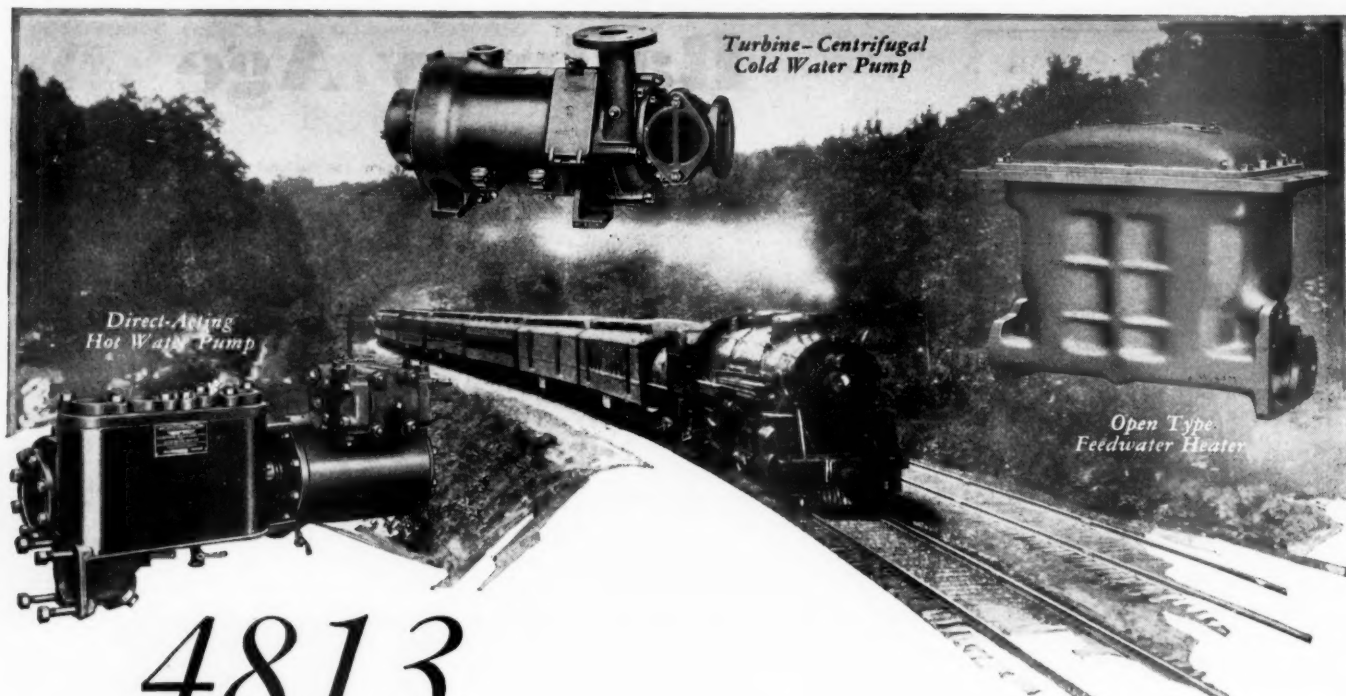
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Inland Waterway Advocates and the Railways

W. R. Dawes, president of the Mississippi Valley Association, in an address at the meeting of that organization at Memphis last week, made statements of a certain kind which constantly emanate from advocates of inland waterway development. As quoted in the press, Mr. Dawes said:

"The railroads apparently have failed to give recognition to changing business conditions in opposing waterway transportation. The development of our inland rivers is not aimed at the destruction of any other form of transportation. Where transportation can be made economically available to agriculture and industry alike the resultant increased prosperity will be shared by all major forces of transportation."

Of course, Mr. Dawes included the railways in the "major forces of transportation" that will share in the "increased prosperity" caused by the development of inland waterways. Railway officers and the public are often told by Mr. Dawes, Secretary of War Hurley, Major General Ashburn and other waterway advocates, that waterway development actually will increase railway traffic.

Mr. Dawes is vice-president of a bank in Chicago. When, how and where did he, or Secretary Hurley, or General Ashburn, acquire an expert knowledge of transportation economics, of railroad management, and of what will benefit the railways? Railway executives and a large majority of professional economists agree that the development of rivers and canals will create practically no traffic that would not be created without such development, and that therefore practically all the traffic that will be secured by these waterways would otherwise be moved by rail and would contribute toward railroad earnings. Mr. Dawes and many other waterway advocates profess the greatest friendliness and solicitude for the railways, but say in substance that railway officers are all wrong when they contend that inland waterway development will hurt the railways.

"Expert" Opinion Regarding Railways

What this means, of course, is that Mr. Dawes and other waterway advocates who express the same views claim that they know better what will be good for the

railways than do those who have devoted their lives to the study and solution of railroad problems, and who now have the responsibility of railroad management. Railway officers do not presume to tell bankers and other business men that they do not know their business and therefore must be taught it by railway men. Why, then, do other business men have the presumption to tell railway officers that they do not know the railroad business, and must be prevented from ruining it by the tender solicitude and mental exertions of other business men?

The *Railway Age* challenges the right of business men, cabinet officers, or any other persons who have little or no knowledge of the railroad business to tell the public that railway officers do not know the effects that will be produced upon the railroads by the development of inland waterways or the adoption of any other government policy. If Mr. Dawes, Secretary Hurley, General Ashburn, and others wish to advocate the development of inland waterways or any other policy, regardless of its effects upon the railways, let them do so, however questionable may be the economic justification of the policies they advocate. If they believe the public welfare demands inland waterway development even though the effect will be to divert traffic from the railways and help to undermine their earning capacity and destroy good railway service, let them advocate it. Let them, however, quit trying to mislead the public as to the probable effects upon the railways of the policies they advocate by telling the public, that, they know the railroad business and railway officers do not. Railway officers are obviously the best judges of the effects that will be produced upon the railways. The fact that railway officers claim the development of inland waterways will hurt the railways is the best possible evidence that it will hurt them. Obviously they would be advocating waterway development if it was likely to be beneficial to the railways.

Insincerity of Waterway Advocates

The purpose of waterway advocates in telling the public that the development of inland waterways will not injure, but benefit, the railways is obvious. The

public feels much concerned about the railway situation at the present time. It does not want railway earning capacity undermined, railway credit destroyed and railway service ruined. For an advocate of any policy to tell the public that it would tend to have these effects would be to create sentiment against it. Therefore, those who are trying to get the public to tax itself to reduce their transportation costs or promote their political interests, and incidentally to divert traffic from the railways, weep in public over the plight of the railroads, and profess to be using their superior intelligence only to dissipate the outer darkness in which railway officers sit, for the purpose of preventing the certain effect of waterway development on the railways from serving as an obstacle to waterway development. The kind of propaganda against the railways disseminated by the Mississippi Valley Association is sufficient to show how cheerfully its officers and members do whatever they can to injure the railways.

Let waterway advocates tell the public the truth—namely, that they are seeking what they want totally regardless of the railways—and leave it to those who know something about the railroad business to say what the effects on the railways will be. Then the public will be better able to determine the real merits of the waterway program.

Britain Plans to Rehabilitate Industry

The industrial crisis in Great Britain, coming as a culmination, not of a period of prosperity as with us, but as a deepening of a long-existent depression, has had most disastrous consequences. Nor are British industrialists apparently expecting any early and automatic return to better times. Rather they have adopted the view that prosperity will return only as they strive consciously and intelligently to bring it back.

The Federation of British Industries, looking toward this end, has recently, after a half year's intensive study, announced a program of "reforms which are needed to rehabilitate British industry." Schemes for heavy governmental expenditure, which seem to be the American nostrum for the cure of hard times, are conspicuously absent from the plan. British business men, now long expert both in economic distress and heavy taxes, have apparently learned that the added taxation of industry which excessive public works necessitates is a poor method of aiding that industry to recover. Governmental expenditure, the Federation urges, must not be increased; rather it must be sharply curtailed. Taxes on industry must not be raised; rather they must be greatly lowered. Costs must be reduced all along the line and non-productive governmental expenditures curtailed if Britain's goods are to be priced competitively in the world's markets.

One of the serious problems of British industry has arisen from the transportation policy, which the Federation believes must be sharply altered. To quote:

Since the war an enormous amount of public money has been expended on the improvement of road communications, which are probably now adequate in general to the needs of the next ten years. The immediate effect of this expenditure has been to divert a considerable proportion of revenue-earning traffic from the railways to the roads. Railway costs have, therefore, to be spread over a smaller total traffic, and, as a consequence, rates have been maintained at a seriously high level.

In these circumstances modernization (in any direction which will ensure low industrial freight charges) is hampered by the difficulty of attracting new capital. Much national money has been expended on road communications, and the present situation of the railways suggests that the superior credit of the nation should be used to finance the large scale modernization which is so long overdue, and which would go so far to help the export industries of the country.

The Federation, in other words, sees clearly that the nation has been spending its none-too-plentiful resources for transport frills while neglecting and even definitely discouraging the basic transport agency upon which its industries depend. If this is true in Britain, how much more true it is in America!

Here we spend the taxpayers' billions to pay a large part of the costs of transport agencies which operate at from two cents to forty cents per ton-mile, enabling them to divert traffic from the form of transport, the railroad, which hauls freight on the average for less than one cent a ton-mile. The bulk of traffic continues to move by rail, and the artificial diversion of the "cream" of the business to other agencies necessitates the maintenance of rates on the bulk of the business at a higher level than would otherwise be necessary. Industry suffers, therefore, not only by making larger contributions in taxes than it saves in freight charges on goods moving by waterways and long distances over the highways, but also by being forced thereby to pay higher rates than would otherwise be necessary on the traffic remaining on the rails.

It must be a cheering sign to British railway men to witness the penetration of sound economic truth into the planning of that nation's leading industrial association. Here and there in this country disinterested commercial leaders are realizing and expounding the issues involved in this problem and the importance of its solution to industrial progress, but such opinion has yet to be crystallized into a generally-accepted policy. The facts, however, are inexorable and will teach their own lesson if they are not recognized. Industry cannot wax prosperous by taxing itself a dollar to save twenty cents in freight charges—nor can the national well-being be fostered by expending billions of capital taken in taxes from productive enterprise to parallel a transport system which can carry freight for less than one cent a ton-mile with others whose total costs are many times higher. The inevitable outcome of such economic folly is a lower standard of living, a consuming public with the means to buy but a fraction of the products which industry can produce, and wasteful and profitless competition everywhere. We are a wealthy nation, but we are not so wealthy that we can with impunity spend billions wastefully.

Kansas Sets Up Basis for Motor Transport Regulation

The Kansas Legislature at its recent session enacted legislation for the regulation of commercial motor vehicles which displays a fine understanding of the fundamentals of the matter at issue. The adequacy of the special taxation decreed by this law, one-half mill per gross ton-mile, is questionable. In the classification of vehicles made subject to special taxation and regulation and the specific exemption of private automobiles, local bus and truck operations and farmers' trucks from further burdens, however, the legislation is excellent. Once the classes of motor vehicles which logically should be subject to regulation and special taxation are determined, time and experience will show wherein such regulation and taxation needs strengthening. An unwise inclusion of private automobiles, farm trucks and local commercial operations in a scheme of regulation could serve only to arouse resentment and thus delay the development of a sound system for controlling the relatively small proportion of motor traffic which should in the public interest be so controlled. In other words, the most important first step to be taken is to separate the chaff from the wheat and Kansas has most admirably done that.

Briefly, the new legislation sets up five classes of commercial carriers which are subject to regulation and the new ton-mile tax. These are:

"Public motor carriers of property"—common carriers of freight operating over fixed routes or between fixed termini.

"Contract motor carriers of property"—those engaged in motor transport of freight for hire, but which are not common carriers.

"Private motor carriers of property"—those transporting property sold or to be sold in furtherance of any private commercial enterprise.

"Public motor carriers of passengers"—common carriers of passengers or express between fixed termini or over a fixed route.

"Contract motor carriers of passengers"—all, not common carriers, transporting passengers by motor for hire.

The classification of highway operations subject to the new law is no more interesting than those specifically exempted. These are:

Motor carriers (either of passengers or freight, or whether they are common, contract or private carriers) operating wholly within the limits of a municipality.

Private carriers operating within a radius of twenty-five miles of a municipality.

Farm trucks transporting products for the owner to market or supplies for his own use homeward.

All commercial motor vehicles included in the five classifications and not specifically exempted are subject to the new gross ton-mileage tax in addition to their present license and gasoline taxes, and also to regulation and supervision of a rather thoroughgoing character. Of the sum collected from the new taxation 20 per cent is to be employed in the enforcement of the law. Limitation of commercial vehicle weights, dimensions and speed is also provided for.

The Kansas legislation is aimed solely at the oper-

ators who use the rural highways as a place of conducting business for a profit. It will require operators of such vehicles to pay more adequately for the public property they use for private gain. At the same time it clearly exempts private motorists and local freight and passenger carriers from additional burdens and definitely encourages truck ownership by farmers.

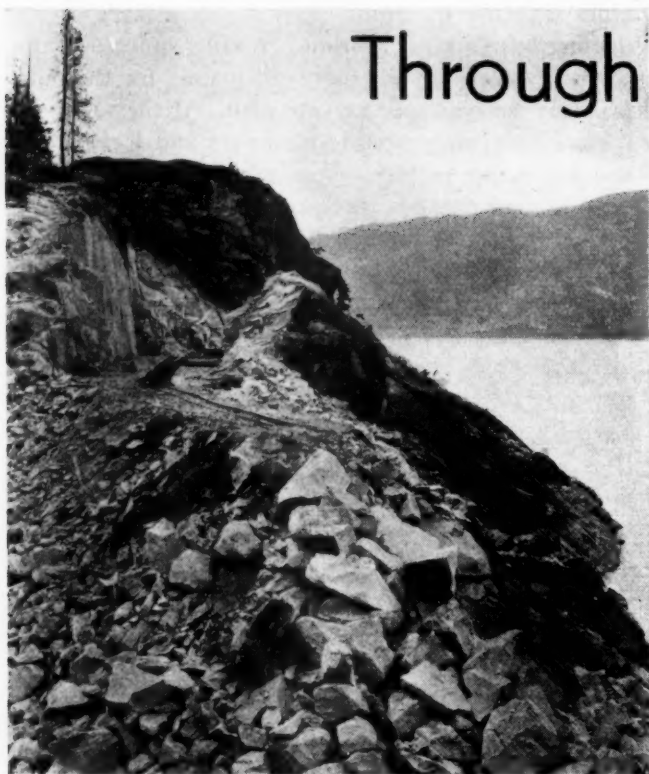
By forcing commercial users of rural highways to pay for the privilege, this legislation removes a burden from local commercial operators who have heretofore been paying equally with long-distance operators for facilities which they do not use and from private motorists who have been paying taxes disproportionate on a road-use basis to those paid by bus and truck lines! It is an effective and final answer to the misleading propaganda with which the country is being flooded: that advocates of fairer regulation and taxation of motor vehicles are endeavoring to curtail private motoring, farm trucking and local highway transport.

Estimating Retarder Results

As reported by various railroads, and as set forth in articles published in these columns from time to time, an installation of car retarders in a classification yard not only facilitates the handling of traffic, but also reduces the cost of yard operation as much as 20 to 25 cents per car classified. The total savings resulting from many installations represent a return of 20 to 40 per cent on the investment.

Although it is readily seen that large savings may be made by the installation of retarders in certain yards, the railroads naturally desire some method of estimating the required expenditure, as well as the anticipated economies to be effected in operation, before proceeding with new projects. By reason of the variations in local conditions and requirements of operation, each yard presents a different problem. However, some authorities contend that a retarder installation will be justified in any yard in which the volume of traffic would ordinarily require hump operation, and that traffic of 800 cars per day justifies the expenditure.

Going further into detail, the number of tracks is ordinarily fixed by the number of classifications, but the number of retarders required can be reduced by grouping the leads for as many as seven tracks, with one set of retarders serving each group. In addition to these retarders, others are required on the main leads, as well as on the lead near the hump, the total retardation required being governed by the weight of the cars and their lading handled in normal operation. Therefore, although the cost of an installation is, to a certain extent, controlled by fixed quantities, the savings accomplished by a retarder installation rise rapidly as the number of cars increases, because the expense of yard operation is not increased proportionately when heavy traffic is thrown in the yard, as is the case with rider operation.



The Lake Shores Are Steep and Precipitous

Through 33 Miles of Rock

All granite excavation only one of many problems encountered in construction of the connecting link in the southern route of the C. P. R.

territory in 1931 will exceed considerably the tonnage of previous years.

In view of the expected increase in traffic, it was thought that the construction of a rail line around Kootenay Lake would be economically justified, as a comparative statement of the interest, maintenance and operating costs of the waterway and rail routes was in favor of the latter. Incidentally, a continuous line through this district would make possible the consolidation of two divisions, thereby eliminating the expenses of one divisional organization. Furthermore, it was estimated that a rail line would reduce the time of passenger and express service over the route by two and one-half hours and that the freight service would be speeded up about twice this amount. In addition to these factors, the continuance of the boat service in a period of increased traffic would have involved a large expenditure for such additional equipment as steam boats and car barges.

A Rough Country

Kootenay Lake is a deep, narrow strip of water about 65 miles long and extending roughly in a northerly and southerly direction. About midway between its extremities an arm extends about 18 miles west of and at right angles to the main body. Kootenay Landing is located at the southern extremity of the lake, while Proctor is situated in the southern angle formed by the lake proper and its west arm, and Nelson is located at the west end of the arm. Although a line between Nelson and Proctor along the south shore of the west arm was completed

THE completion by the Canadian Pacific of a southern route between Winnipeg, Man., and Vancouver, B. C., by the construction of a 33-mile line between Kootenay Landing, B. C., and Proctor along the west side of Kootenay Lake, which was placed in service on January 1, involved the handling of 1,500,000 cu. yd. of solid rock excavation and the construction of five tunnels. In addition, the location and construction of the line were attended by numerous difficulties owing to the adverse physical characteristics of the country. The new line replaces the boat and barge service on Kootenay Lake by which both freight and passengers were formerly transported between Kootenay Landing and Nelson.

The southern or Crows Nest route of the Canadian Pacific extends through the Crows Nest pass of the Rocky Mountains. At the time this line was constructed the traffic moving through this territory was not sufficiently profitable to justify the completion of the link along Kootenay Lake, since the lake afforded a natural route over which traffic could be handled by steamer and car barge. Within the last decade, however, traffic over this route has grown materially and it is expected that it will show an accelerated growth in 1931. The completion of a large fertilizer plant at Trail, B. C., which is some distance southwest of Kootenay Lake, is expected to contribute many tons of fertilizer traffic over this line in 1931, in addition to large quantities of raw materials required in the manufacture of the fertilizer. Moreover recent developments indicate also that the tonnage of heavy ore originating in this



All Excavation Required the Extensive Use of Explosives

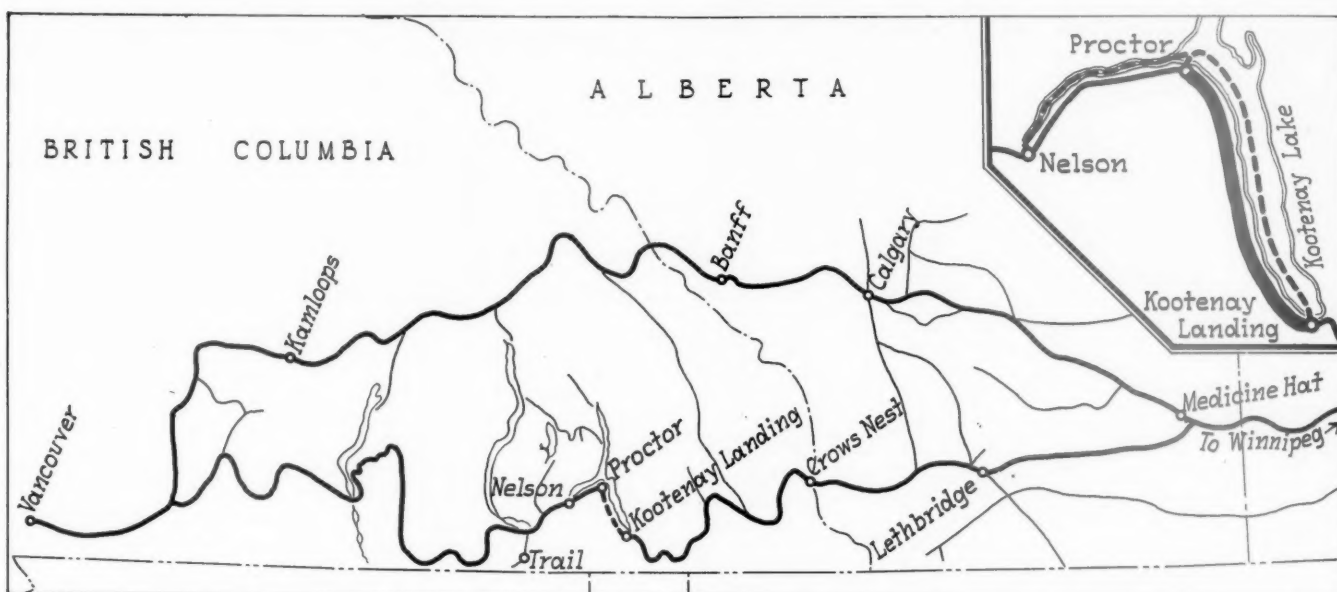
some time ago, traffic has heretofore been handled by water from Kootenay Landing to Nelson instead of to Proctor, the terminus of the rail line.

The lake is bounded on both sides by high rocky mountains that rise abruptly from the shores of the lake. Frequently tributary streams have cut deep and sometimes precipitous valleys in the mountain sides and the shore lines of the lake are extremely irregular. At many points along the west shore the water reaches a depth of more than 200 ft. only a few feet from its edge.

In 1897 a preliminary line was located between Kootenay Landing and Proctor, which paralleled the lake although at a considerable distance up the side of the mountains. As located, this line had a ruling grade of one per cent and would have required the construction of a large number of high bridges as it crossed some of the tributary streams at their deepest points. The cost of

back from the shore and approximately 60 ft. above the level of the water, and even in this location it was not possible to construct an embankment with the toe in the lake at any point owing to the steepness of the shore and the depth of the water. For these reasons it was necessary to excavate into the hillside and support the line on solid rock. The line as constructed has a ruling grade of 0.4 per cent and a maximum curvature of 12 deg.

As a matter of economy the grade line was laid in such a manner as to balance the embankment quantities as nearly as possible. Owing to the steepness and irregularity of the hillsides, it was necessary at times during construction to shift the center line a few feet from the located line in order to increase or decrease the excavated material so as to balance evenly the embankment quantities. At one point during construction it was found that after the rock had been blasted according to the original



Showing the Northern and Southern Transcontinental Lines of the C. P. R. with the Connecting Link in the Southern Route. Inset—An Enlargement of the Kootenay Lake District Showing the New Line

such a line would have been large, and in view of the small quantity of traffic available at that time it was thought that the natural route afforded by the lake offered some advantages as against building the connecting link. When the question of the construction of the rail line was again raised, it was found that the one per cent grade of the line as originally located was too heavy for modern traffic and it was decided to relocate the line on a more favorable grade.

Steep Hillsides are Problem

The most obvious course was to locate the line along and as close as possible to the lake shore where the grade would be negligible. Such a line would necessarily follow the shore line more closely than the line originally located and for this reason it would have added length.

In view of the irregularity of the shore it is to be expected also that those situations requiring tunnels would develop more often and that sharper curves than otherwise would be required. Originally it was thought that the line could be placed some distance above and immediately adjacent to the water line and protected from high water by means of retaining walls. However, a survey of the land by aerial photography revealed that the shore line was so steep and precipitous that no footing for the line was afforded.

The only alternative was to place the line about 50 ft.

alignment, there was not sufficient space on which to place the track and it was necessary to move the line a short distance into the side of the hill.

All the grading work was in solid granite, which was extremely hard, and all excavation was done by blasting. The granite contained strata of softer material which presented considerable trouble during construction for, when blasting, the lines of cleavage followed these strata of soft material, resulting in larger quantities of excavated material than had been anticipated in the computations.

The quantity of solid rock excavated totaled more than 1,500,000 cu. yd. One cut yielded 73,000 cu. yd. of material and one fill required 19,394 cu. yd. From one mile 130,000 cu. yd. of solid rock was excavated. The upper slopes of some cuts are as high as 110 ft., while the lower slopes of the highest fills extend to about 70 ft. below the base of rail.

As stated previously, in the construction of a line under such conditions as prevailed in this instance, it is to be expected that tunnels should play an important part. On this line it was planned originally to construct four tunnels, the lengths of which were to be 145 ft., 160 ft., 743 ft., and 1,147 ft. However, in one of the cuts the rock was faulted to such an extent that it was found to be more economical to construct a tunnel 88 ft. long farther back in the side of the hill. There are, there-

fore, five tunnels on this line, having an aggregate length of 2,283 ft.

The larger waterway openings are spanned by steel bridges, there being one 150-ft. and two 125-ft. through-truss bridges and two deck plater-girder bridges, one having two 50-ft. spans and the other one 60-ft. span. Corrugated iron pipe and cedar timber culverts are used for the smaller openings.

The region about Kootenay Lake has considerable scenic beauty and historic value and throughout the location and construction of the line an attempt was made to preserve these qualities as far as possible. At a number of points on the line the location was altered after it was discovered that construction of the line in the original location would cause valuable Indian rock paintings to be destroyed.

This line was located and constructed under the supervision of T. C. MacNabb, engineer construction on the Canadian Pacific, with headquarters at Winnipeg, Man., to whom we are indebted for the information contained in this article. The contract for the grading was awarded to Dutton & Grant, Winnipeg, who employed approximately 1,000 men on this project.

Hearing on B. & O. Acquisition of C. & A.

WASHINGTON, D. C.

HEARINGS on the Baltimore & Ohio's application for authority to acquire control of the property of the Chicago & Alton, which was purchased by its representatives at foreclosure sale in December and which it now desires to acquire through a subsidiary, the Alton Railroad Company, were held before O. E. Sweet, director of the Bureau of Finance of the Interstate Commerce Commission, on April 13 and 14. The commission had allowed a protective committee representing stockholders of the old Alton company to intervene in opposition to the application and the B. & O. witnesses were cross-examined at great length by J. A. Reed, formerly United States Senator from Missouri, in what seemed to be an effort to connect the B. & O. with the relations of Kuhn, Loeb & Co., to abandonment of proposed plans for a reorganization which would have allowed the stockholders to participate. Daniel Willard, president of the B. & O., and George M. Shriver, senior vice-president, however, denied any detailed knowledge of the controversies between the Alton security holders before the company actively took under consideration plans for acquiring the property early in 1930 after the commission had allocated the Alton to the B. & O. in its consolidation plan.

Reference was made to the report by Professor Ripley that the B. & O. needed strengthening at both its eastern and western ends and to the consideration of the acquisition of the Wabash, which had been abandoned after the Pennsylvania had acquired control of the latter. Mr. Willard said the company had always had grave doubts as to whether it would be advisable for it as an eastern road to extend its system west of the Mississippi and that while the Wabash was under consideration conversations had been had with the Union Pacific and Burlington as to a possible sale of the western part of the Wabash. Mr. Willard said, however, that the company hoped the step would prove

advisable, or it would not be trying it. He said that aside from the fact that the commission had allocated the Alton to the B. & O. the company saw possible advantages to both roads from the acquisition but he also said that it was desired to follow the commission's plan and to "take the good with the bad," indicating that by the "good" he had particular reference to the Reading and Central of New Jersey.

After explaining that the cost of the property to the B. & O. will be approximately \$75,000,000, including the assumption of underlying mortgage bonds and equipment trusts amounting to \$49,545,000, Mr. Willard said that he was confident that through the operation of the property in connection with the Baltimore & Ohio system it will not only continue to serve the public effectively but its opportunities will be enlarged and it will be an additional source of business to the B. & O. justifying its investment. He emphasized that the B. & O. had had no dealings with the old company and is not seeking to reorganize it, but has bought the property at receivers' sale and that the title comes to it from the receivers and the court subject to the commission's approval. He said that the stockholders had "had nothing to sell" and that the court had so held. The B. & O. had decided to try to acquire the property if it could be obtained at a cost of not exceeding \$75,000,000 and in reaching this figure consideration had been given to the fact that the indebtedness not disturbed but assumed includes \$54,350,000 of 3 per cent bonds that have 19 years yet to run. The income account of the receivers for the five years including 1929 had shown an averaging earning applicable to capital of \$3,600,000 although in 1930 the receivers had not earned interest on the obligations which were not foreclosed.

"The Alton's difficulties in the past have been due in large measure to excessive capitalization," Mr. Willard said, "its fixed charges being more than it could bear. We propose to capitalize the new company at cost and believe the cost to be fair. The obligations of the old company (not including unpaid interest which has become principal) aggregate about \$88,200,000, with annual interest charges of \$3,368,390. The indebtedness of the new company will be about \$50,000,000 with interest charges of \$1,560,000, or, roundly a reduction in obligations of 43 per cent, and an even more drastic cut in fixed charges of \$1,800,000 annually, or, 53 per cent. The total capitalization of the old company, bonds and stock, was about \$129,000,000. The proposed capitalization of the new company will roundly be \$75,000,000, a reduction of over 40 per cent.

"We believe the existing situation is due in large measure to widespread but temporary conditions, and though there may be some doubt as to the ability of the railroad formerly owned by the Chicago & Alton Company to 'stand on its own feet' as an independent carrier, I am confident that through the operation of the property in co-ordination with the Baltimore & Ohio System it will not only continue to serve the public effectively, but its opportunities will be enlarged and it will be an additional source of business to the Baltimore & Ohio and will justify the Baltimore & Ohio's investment as I have indicated.

"While we propose to operate the property as a separate railroad, we do not propose to operate it as an independent railroad, but in harmony with the Baltimore & Ohio System. Generally speaking it is not the intention to abandon any of the important services or facilities of the Alton, but it is our hope rather to improve and expand them in the interest of both com-

(Continued on page 760)



Gathering Potatoes in Aroostook County

Taking Potatoes to Market

Bangor & Aroostook develops service
from Northern Maine

DURING the season of 1929-30, the Bangor & Aroostook hauled 47,480 carloads of potatoes from the producing territory in Aroostook county in northern Maine and delivered 95 per cent of these cars at southern Maine junction points on the day following loading. Despite the fact that there are no less than 106 loading points for potatoes in the Aroostook territory, it is possible, by efficient operating methods, to consolidate traffic so as to handle the trains over the southern part of the main line with an average of 5,800 tons per train. This performance was made possible by an intensive study of every detail of operation, and was performed under handicaps described in the *Railway Age* of April 11.

Aroostook county, Maine, is one of the most important potato-producing areas in the United States. The acreage planted to potatoes in this county is slightly more than four per cent of the total potato acreage in the United States, but produces more than 10 per cent of the total, the yield per acre being about 250 per cent greater than the average for the country as a whole.

When the Bangor & Aroostook was constructed, the principal traffic was forest products. The growth of manufacturing, while small, has been steady; however, the possibilities for traffic expansion through manufacturing are limited and the development of this potato traffic has been watched most carefully, and the railroad has co-operated in every way with the shippers, with the result that the movement has shown a steady growth, dependent, as in the case of all perishable shipments, upon weather and market conditions. For the season of 1925-26, this movement amounted to only 28,983 cars while for the three following seasons it increased to 31,487 cars, 30,472 cars, and 31,216 cars, respectively. Thus, the 1929-30 crop represented an increase of more than 16,000 cars over that of any previous year. Because of market conditions, the prospects are that this

season's movement will not be as heavy as the previous one, but it is certain that it will be greater than during any season with the exception of that of 1929-30. To give some idea of what this movement means, it might be stated that potato loading averages 665 bu. to the car and the 1929-30 movement represented a total of over 31,000,000 bu. of potatoes.

In order to meet the market conditions, a considerable portion of the crop is placed in storage. The railroad has co-operated with the shippers in providing sidings for these storage warehouses. With the 23 new warehouses built during 1930, there are now 9.17 miles of potato storage warehouses along the line, with a total capacity of 5,602,000 bu. of potatoes. These warehouses are so constructed as to protect the stored potatoes from frost, and cars may be loaded from them at the will of the owner, thus avoiding a tremendous rush of shipments for a month or six weeks and a complete lack of business during the rest of the year. Potatoes are shipped on the B. & A. for 11 months of every year and sometimes for 12 months; however, the principal movement begins in September and continues through May on a large scale.

Potato Handling Equipment

Prior to the shipping season of 1924-25, the potatoes were handled largely in common box cars, which, during the season when frost protection was necessary, were equipped with temporary false linings and stoves by the shipper and forwarded in charge of one care-taker to each five cars or less. Beginning with that season, however, the Maine Potato Growers' Exchange, which handles a large percentage of the crop, leased a large number of refrigerator cars and the total shipments in refrigerators increased in that season from 4.3 to 19.9 per cent. This service proved so satisfactory that there was soon a general demand from all shippers for re-

refrigerator cars for potato shipment, and, as a result of a conference between the potato shippers and the representatives of the railways, an agreement was reached whereby the shippers were supplied with sufficient refrigerator cars to supply their entire demand during the cold months, and to enable them to discontinue to use the lined box cars. The change in the type of equipment used is indicated in the following table, which covers a 10-year comparison:

| Season 1919-20 | Equipment | Season 1929-30 |
|-------------------|-------------------|-------------------|
| 47.5% | Common Box Cars | 26.8 |
| 36.3 | Lined Box Cars | .0 |
| 12.9 | Heater Cars | .9 |
| 10.7 | Refrigerator Cars | 72.3 |

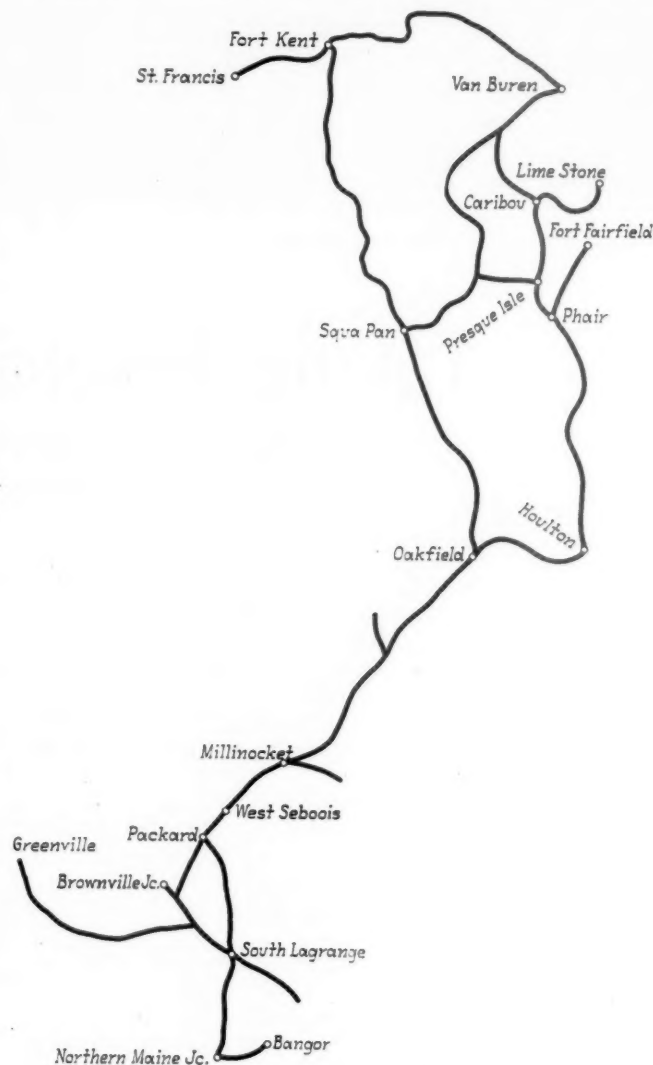
On December 3, 1930, there were 4,195 refrigerator cars assigned to this service, with return boards applied to their sides. Most of these cars were supplied with charcoal heaters by a shippers' protection service. These heaters are put in the cars beginning about November 1, so as to be in readiness for the period when they are a necessity, which usually begins about December 1, and lasts to March 1.

The rather peculiar car needs of the potato shippers, and of the shippers of paper, the other principal commodity handled, make necessary a rather unique system of car inspection and handling. During the months of September and October, 78 per cent of the closed cars loaded on the B. & A. are loaded either with potatoes or newsprint paper, both commodities requiring high-class cars. Such cars must be tight so as to keep out the weather, and, for potatoes, the cars must not have been contaminated by previous loading of chemicals which impregnates the wood of the floor and the sides and damages potatoes. Such cars are known as "chemical bottoms" and it requires a car inspector of experience to detect a car that is so affected. As an example of the prevalence of such cars, during September and October, 1930, eight per cent of all the box cars received empty from connections were found to have chemical bottoms. Particular attention must also be paid to the inspection of the refrigerator cars, since brine on the floor ruins the bottom layer of potatoes. This also presented a difficult problem, but claims for such damage have been reduced about 80 per cent in the past few years. This was accomplished through the services of a committee, consisting of the freight claim agent, the superintendent, the traffic and mechanical department representatives, who called upon the shippers, explained to them the danger of loading potatoes into refrigerator cars whose floors were saturated with brine and recommended the use of floor racks.

Operations in the Field

As may be seen from the map, the potato territory extends over quite a large area. At practically every cross road along some of these lines there is a siding where facilities are provided for loading potatoes—usually a one- or two-car loading wharf and location for one, two or more potato warehouses. At some points where highway crossings are some distance apart, sidings have been put in between the crossings and the farmers have combined in providing a roadway to the sidings to shorten their haul and enable them to handle their crop more economically and efficiently. For example, along the line between Caribou and Presque Isle, a distance of 15 miles, there are 7 of these small shipping points, each with one or more warehouses, and with the opportunity for handling shipments direct to the car from the trucks or sleighs. Between Houlton and Caribou, 60 miles, there are 27 shipping points, not

counting terminals. The work is not sufficient at any of these places to provide for the services of a switching crew, but is done by the local crew. The necessity for experienced crews and for capable supervision is indicated by what happens at these points. The train stops, the flagman goes back to protect the train and the remaining members of the crew go into the siding and switch out loads, place empties and couple up their trains. Then the air brakes must be tested and the flagman recalled, and, when this must be done 7 times in 15 miles, it will be seen that a different problem is

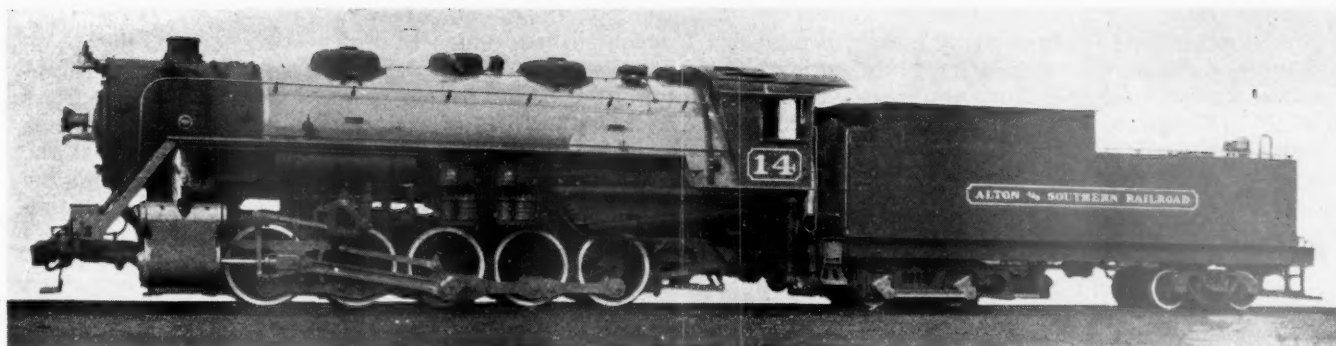


The Line of the Bangor & Aroostook

presented from that encountered in shipping territories of greater production.

By careful study, the operating officers have evolved a system of pickup services that provide the maximum efficiency with the minimum expense. During the shipping season a daily local is run from Fort Kent to Van Buren, which sets out empties and picks up loads along this line, and makes connections with a through train from Van Buren, via Stockholm to Caribou. At this point, it connects with the Limestone branch local train, and picks up the loads that have been concentrated at Caribou. Some idea of the productiveness of this territory may be gained from the fact that during the 1929-30 season, 5,632 cars of potatoes were loaded on the 16-mile Limestone branch. From Caribou this through

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Ten-Wheel Switcher Built for the Alton & Southern
by the Baldwin Locomotive Works

Ten-Wheel Switcher with Aluminum Rods

Aluminum alloys extensively used in details of Alton & Southern
locomotive recently placed in transfer service—Cylinders
develop 80,500 lb. tractive force

THE Baldwin Locomotive Works recently delivered a 10-wheel switching locomotive to the Alton & Southern, a subsidiary of the Aluminum Company of America, for operation in transfer service over the line generally known as the East St. Louis Outer Belt Line. It exerts a rated tractive force of 80,500 lb. The forward end of the tender is carried on a Franklin tender booster which develops an estimated tractive force of 15,800 lb., making a total tractive force at starting of 96,300 lb. The locomotive weighs 320,840 lb. and has 57-in. diameter driving wheels. The boiler operates at a pressure of 230 lb. The cylinders are 28 in. by 30 in. Steam distribution is effected by means of a Baker valve gear with 14-in. valves. The valves are set with a travel of $8\frac{3}{4}$ in. and a lead of $\frac{1}{8}$ in. The steam lap is $1\frac{1}{4}$ in. with an exhaust lap of zero. The locomotive is equipped with an Alco type G reverse gear. It is designed for operation around 13-deg. curves and on 2 per cent grades.

Aluminum and Aluminum Alloys Extensively Used

The feature in the design of this locomotive is the extent to which aluminum and aluminum alloys have been used in the construction of various parts. The boiler and cylinder jackets are of aluminum sheet. In addition, aluminum alloy was used for the main and side rods, crosshead links, combination levers, valve rods, and eccentric rods and cranks. The running and cab boards and the bumper steps on the engine and tender are of cast aluminum, as well as the small miscellaneous steps to the sand box, turbo-generator, headlight, etc. The headlight bracket and number plate are of aluminum, cast integral. Aluminum was used for the hand rails, grab irons, bell and a number of smaller details on the engine and tender.

The following parts for the tender booster were made of aluminum: axle-bearing cap, connecting rods, cranks, crossheads, eccentric rods, inside and outside valve

links, inside and outside valve-rocker levers and steam gage.

Compared with a locomotive of the same type and exerting a tractive force of around 78,000 lb., the saving in weight on the driving wheels on account of the

Principal Weights and Dimensions of the Alton & Southern Ten-Wheel Switcher

| | |
|---|--------------------------|
| Railroad | Alton & Southern |
| Builder | Baldwin Locomotive Works |
| Service | Switching |
| Rated tractive force | 80,500 lb. |
| Tractive force, tender booster | 15,800 lb. |
| Tractive force, starting | 96,300 lb. |
| Weight on drivers \div tractive force | 3.99 |
| Cylinders, diameter and stroke | 28 in. by 30 in. |
| Valve gear, type | Baker |
| Weights in working order: | |
| On drivers | 320,840 lb. |
| Total tender | 238,960 lb. |
| Total engine and tender | 559,800 lb. |
| Wheel bases: | |
| Driving | 21 ft. |
| Rigid | 15 ft. 9 in. |
| Total engine and tender | 66 ft. 11½ in. |
| Driving wheels, diameter outside tires .. | 57 in. |
| Boiler: | |
| Steam pressure | 230 lb. |
| Fuel, kind | Soft coal |
| Diameter, first ring, inside | 88 in. |
| Firebox, length and width | 120 in. by 96¼ in. |
| Tubes, number and diameter | 245—2 in. |
| Flues, number and diameter | 50—5½ in. |
| Length over tube sheets | 18 ft. 6 in. |
| Grate area | 80 sq. ft. |
| Heating surfaces: | |
| Firebox and combustion chamber | 325 sq. ft. |
| Tubes and flues | 3,684 sq. ft. |
| Total evaporative | 4,009 sq. ft. |
| Superheating | 1,116 sq. ft. |
| Combined superheat and evaporative | 5,125 sq. ft. |
| Tender: | |
| Water capacity | 12,000 gal. |
| Fuel capacity | 18 tons |

aluminum construction is estimated to be approximately 10 per cent. In addition, the reduced weights of the reciprocating parts exerted an important influence in the amount of counterbalancing required.

The cylinders of the Alton & Southern 10-wheel switcher are of cast steel, with bushing of Eddystone

B iron. Lubrication is obtained by means of an Edna model 1928 force-feed mechanical lubricator. The crossheads are of the underhung multiple-bearing type. Floating bushings of bronze, working in fixed steel bushings, are used in the back ends of the connecting rods and in the main side-rod connections. Lateral-motion boxes are applied to the journals of the front axles and the main driving wheels have plain tires.

The boiler has a straight top and is equipped with a Type A superheater and two Thermic syphons. Superheated steam is used for the two 8½-in. air compressors and booster, and for the generator turbine and blower. A mechanical stoker was not applied, as the locomotive will be used on short runs only.

The tender has a water capacity of 12,000 gal. and a fuel capacity of 18 tons. The wheels of the front truck, which is equipped with the tender booster, are 36 in. in diameter and have 7.88-in. by 9⅛-in. journals.

The wheels of the rear truck are 33 in. in diameter and have 6-in. by 11-in. journals.

Hearing on B. & O.

Acquisition of C. & A.

(Continued from page 756)

panies. One exception to this general statement that now occurs to me may be in the joint use of certain terminal properties, notably at East St. Louis, where the terminal yards and freight houses of the two companies adjoin. Undoubtedly, there are also certain substantial economies that can be made by retiring from the use of the Union Station at Chicago, Alton passenger trains being brought instead into the Baltimore & Ohio's Grand Central Station in that city. Moreover, the Baltimore & Ohio has at this time an excess of locomotives of a higher capacity than many now being operated on the Alton, and I believe if forty or fifty of the engines such as I have in mind were transferred to the Alton the results would be beneficial not only to both of the companies involved, but also to the public served by the Alton company. The Baltimore & Ohio can also assist the Alton with freight car equipment and can, in many ways, place its facilities at the disposal of that company—all without new or additional financing.

"The public would be benefitted in a general way in that the entire territory served by the Baltimore & Ohio System and the Chicago & Alton line, in all some 7,650 miles of line, with some 1,300 agency stations, would come under one single general direction and control. It also offers opportunities for the co-ordination of the soliciting forces of the two companies at off-line agencies in a number of important cities. There would, of course, be the benefit to shippers generally of a one-line-haul throughout an enlarged territory extending from St. Louis, Kansas City and Chicago to various Atlantic Seaboard points and to Canada. The combination proposed would also place the Baltimore & Ohio in direct traffic communication with the important industrial and agricultural areas developed on the Alton.

"The Baltimore & Ohio does not, at this time, seek authority to operate the property directly, but will no doubt ultimately submit such a proposal for the commission's consideration. In the meantime, with the entire stock of the new company owned by the Baltimore & Ohio, nearly, if not quite as much can be done to co-ordinate operations and effect economies as could be

accomplished under a direct operation of the property as a part of the Baltimore & Ohio System. Moreover, the Alton, over a period of nearly three-quarters of a century, has secured a measure of good will which it is desired to retain, and it is hoped, expand, as the advantages of its operations in co-ordination with the Baltimore & Ohio System are demonstrated. During this period it will be helpful if the executive officers of the Alton can be in immediate charge of the property, and so in a better position to promptly sense and respond to local needs under changed ownership.

"The matter of immediate importance in the public interest would be in taking the property out of receivership where it has been for a period of nearly nine years, and where, notwithstanding a capable administration, under effective direction of the court, there has been the handicap of the financial inability to take initiative and promptly provide or expand facilities sufficient to meet the public requirements under changing conditions.

"While the Baltimore & Ohio management was actuated by the commission's 'complete plan' to begin negotiations for the acquisition of the property of the Chicago & Alton Railroad Company, it would not be true to say that the Baltimore & Ohio has bought the Alton because of the commission's plan alone. While we recognize that the Alton is not at this time a strong railroad and perhaps cannot be made a strong railroad for some time, we believe that it can be made ultimately to 'stand on its own feet,' and be a successful and profitable addition to the Baltimore & Ohio System. Experience alone will show whether or not we are justified in this belief.

"In this, as in other similar instances, the Baltimore & Ohio Railroad Company has acted on its faith in the ultimate and complete carrying out of the express policy of Congress, with the resulting establishment of a limited number of systems capable of competing with each other upon substantially equal terms in the East as well as in the West."

Both Mr. Shriver and Mr. Willard were questioned regarding the savings expected to be derived from operation of the Alton in harmony with the B. & O., but said that no very definite estimates had been made. Mr. Willard said that some savings in expenses could be made after a consolidation but that such a step was not contemplated for some time and he pointed out that he shared the belief that it would be unfair to reduce the number of employees at this time, saying that the estimate that \$600,000 would be saved following acquisition of the Buffalo, Rochester & Pittsburgh had not been realized because it could not be done without reduction of forces. Mr. Shriver said he had never discussed with Kuhn, Loeb & Co., any plan for reorganizing the Alton company but he had got the impression that such a plan had been discussed. He had reached the conclusion early in 1930 that the stockholders were not entitled to any recognition from an equitable standpoint but there had been some discussion as to whether they should be considered from a good will or nuisance standpoint. J. J. Ekin, comptroller of the Baltimore & Ohio, introduced statistical testimony regarding the Alton property and its traffic.

The testimony on behalf of the applicant was concluded on April 14 and the hearing was postponed until May 4 at the request of Mr. Reed. Three short-line railroads connecting with the B. & O. in Illinois, the Kansas & Sidell, the Casey & Sidell and the Yale Short Line, were allowed to intervene, as was a committee representing the 4 per cent noncumulative preferred stockholders.

Pro and Con on Need for Umpire

A railroad president calls plan fantastic—Individualism
the great weakness of the railroad
industry, says Woodlock

O PINIONS differ widely on the proposal made by F. J. Lisman in an article which appeared in the *Railway Age* of April 4 that the railroads appoint an umpire with autocratic power to deal with rate questions, inter-railroad competition, publicity and research. The views of two distinguished men, one in favor and the other opposed, are presented herewith. One of them is a railroad president who must remain anonymous. The other is former Interstate Commerce Commissioner Thomas F. Woodlock. Mr. Woodlock's remarks are reproduced from one of his series of articles which are appearing in the *Wall Street Journal*.

Plan Impractical and Fantastic

By a Railroad President

My knowledge of railroad conditions compels me to say that the suggestion of a railroad umpire seems to me to be impractical and the plan outlined in this article, in my judgment, is fantastic. I feel that the author has approached the subject from a theoretical standpoint and that his conclusions are not based on actual knowledge of what the railroads have accomplished, are accomplishing and are seeking to accomplish.

It is quite true that the railroads individually are confronted from time to time by what has been called "shipper terrorism". The writer of this article says "individual railroad officers lack courage to suggest the raising of rates wherever this might be possible, for fear that their company might lose a large amount of traffic." There is no question about this. The traffic officer and the executive head of a railroad well know what will happen to the property if its management dares openly to run counterwise to the suggestions of a large shipper. And it is generally possible for a shipper of this character to find some line which will prove subservient in the hope of increasing its traffic.

Sectional Jealousy Would Arouse Politicians

But would an umpire, such as suggested, meet the situation? Suppose he was confronted by the sugar problem the author describes so accurately. Then, the problem would not be one for the eastern and western lines to solve, but the solution would hang on the word of one man or, at least, no matter how many advisors, council of elder statesmen or whatever he may have, he would be held responsible. You can readily imagine the opportunity this would give the politicians and it is not difficult to picture the Roman Holiday the Senate would make if it seemed for a minute that some part of the west or south was being discriminated against in favor of the east.

The umpire would be confronted by many geographical problems. Competition between large manufacturing and distributing centers for markets in the United States is extremely keen. Pittsburgh and Buffalo and Pittsburgh and Chicago battle over rates into and from their steel mills, St. Louis, Kansas City, Omaha, and

Chicago oppose each other as distributors and, in turn, compete with Houston and Dallas for the business of the southwest. You undoubtedly recall the bitter dispute of several coal fields for the so-called lake cargo business, involving labor and political leaders. A former member of the Interstate Commerce Commission was refused confirmation by the Senate because of his attitude in this case, and another appointee of the President was similarly treated because he had once been general counsel for a coal company, although he had subsequently been Secretary of the Commonwealth of Pennsylvania and Ambassador to Japan. Under such circumstances, can you imagine a railroad umpire trying to make a binding decision? Even the Interstate Commerce Commission, the tribunal the law has provided, has difficulty in meeting the situation.

What Would Umpire Do in This Case?

The commission, as you probably know, in the so-called eastern class rate case ordered decreases in rates on fifth and sixth classes of freight, while increasing those of the higher classes. The traffic manager of the Chamber of Commerce of Rochester has announced that as a result of these increases the shippers of Rochester will use the New York State barge canal and the trucks for the handling of their higher class freight into and out of Rochester. I cannot help but wonder what the umpire could do in such a case as this.

The railroads appreciate the difficulty with respect to this rate situation. They meet it frankly, and, I believe, are taking constructive steps to solve the problem. Taking the eastern territory, for instance, the chairman of the traffic executives, independent and impartial because employed by all the railroads, has full authority to order a railroad to desist from taking action regarded as inimical to the carriers as a whole until the matter can be brought to the attention of the presidents of the eastern lines. This serves to prevent precipitate action, affords full opportunity for a general discussion of the subject, and frequently serves to prevent loss of revenue.

It is true that in some instances action originally planned becomes effective but the railroads and their shippers still have the opportunity to carry the case to the Interstate Commerce Commission for final adjudication. It seems to me that this is working along more constructive lines than by the injection of a third party in the form of an umpire.

In my reading of this article I am continuously impressed with the fact that the author is not as familiar as perhaps he might be with actual operating conditions. He suggests an agreement that "a line more than 25 per cent or 50 per cent longer than a short line between any two points should not endeavor to compete providing there are at least two competitors for such business." Such a rule probably would leave Pittsburgh with but two or three routes so far as New York and a goodly part of the eastern seaboard is concerned and many roads would be left without their most important sources of traffic. Present routes and channels of trade would be

seriously upset. The Interstate Commerce Commission which watches this question of circuitry has not found any such rule necessary and has not condemned circuitry unless it exceeded 50 per cent of the direct route.

Railroads Experiment on Large Scale

Similarly, the writer's dismissal of the enormous amount of experimental work the railways are doing themselves and the even greater research of the manufacturers of railway appliances indicates a lack of familiarity with conditions as they really are. Through the organization of the various technical committees of the American Railway Association, in which all the important railroads have representatives, ideas developed by any railroad are brought to the attention of every other railroad in the country.

The idea of closing off-line traffic offices and a reduction in the number of solicitors indicates a lack of knowledge of the work of these offices and men. It is true, freight and passengers are being solicited against competitors—just as a solicitor for a life insurance company solicits life insurance against every other life underwriter, or a bond salesman competes against other bond salesmen or offers one form of security as against another. But these solicitors are also the railroads' point of contact with the public, they are the interpreters of its tariffs, they are familiar with routes and gateways and terminal conditions, and they are solicitors for the railroads against other forms of transportation. Manufacturers and other shippers located exclusively on one railroad find themselves almost entirely dependent on its off-line traffic people to keep them advised regarding routes, terminals and even market conditions and in this way alone they perform an important and constructive service. Incidentally, any saving in this direction, in view of the ratio of traffic expenses to the total, would be relatively unimportant. On the other hand, I am convinced that the umpire and the organization provided for him in the article would add materially to the railroads' cost of doing business.

Other More Important Problems

I note the author in his concluding paragraph makes this statement: "The mere nomination of an umpire would greatly stimulate railway credit. It would tend to restore the confidence of railway stockholders in the permanent security of their investment." It seems to me there are other and more important problems confronting students of the railroad situation. For instance, in the New York American of March 31, Professor William Z. Ripley, writing under the head of "Labors' Role in Mergers" makes this statement in discussing the short lines:

"There are 600 of these little railroads in the United States. Many are ill-equipped, more or less hard up, and practically exposed to the short haul competition of the bus and truck. Every taking over of such a property by a big system will operate TO RAISE the quite common sub-standard wages of their trainmen to the full level on standard lines. Such an increase of payroll, amounting to millions of dollars annually, will surely result."

Merger of these short unproductive and usually unnecessary railroads into the larger systems, it seems to me, especially under such conditions as Professor Ripley suggests, can only result in impairing the credit of the more prosperous and substantial of our transportation companies.

I believe that this is the kind of question which should be disturbing those interested in railroad securities at this time. The matter of protecting the credit

of the large transportation systems against such conditions as are here described seems far more important to me than any suggestions of an umpire intended to correct rate questions, which I believe the carriers have already well in hand.

If Plan Is Unacceptable Another Must Be Found

By Thomas F. Woodlock

In his article in the *Railway Age* (April 4), "A railroad umpire would remedy many ills," Mr. F. J. Lisman has shown himself a good sportsman. He has given his critics every chance in the world to shoot at his proposals, for he has stated them in detail as well as in the large, and has shirked nothing of the difficulties inherent in such a method. It should, therefore, be an easy matter for those who for one or another reason dislike the idea in principle to show why it can not be put into practice, and to demonstrate with equal lavishness of detail the utter impossibility of the idea itself. It seems, however, to this writer that when this has been done and we have arrived at the final Q. E. D.'s of the demonstrations there will remain a stubborn fact and a real question.

That fact is a simple one and the question arises directly out of the fact. The fact is that the railroad industry for the first time in its existence is faced with a fight for its life. Not until within ten years has it ever had to meet an enemy from without; prior to that time its troubles were internal. Up to 1920 it had no competition for its traffic—no competition at least worthy of the name. Since 1920, it has lost one-third of its passenger business and one-third of its less-than-carload merchandise freight, and all of the increase that should normally have come to it since that time. Further, it has seen a steady diversion of its carload traffic both to the highway and to the waterway, and the end of these losses is yet not clearly in sight. The loss in revenues as a result of this diversion runs into the hundreds of millions of dollars. That has occurred within ten years.

Perils of Individualism

And during those ten years, coincident with the impact of this competition from without, the industry has had within its own ranks competition as keen and disunion as great as at any time in its history. What is the commonest criticism that one hears nowadays of our railroad managers? It is the remark that they can not agree among themselves upon anything. True or untrue, just or unjust, that is the verdict of the man in the street—and not only his verdict but the confession of not a few of the managers themselves.

The achievements of management in all other respects have received recognition almost as generous as those achievements deserve, and they deserve very much. Management has done wonders with its plants and its "teams." Never has any country enjoyed railroad service better than that rendered in the past seven or eight years and being rendered today. It reflects the highest kind of team leadership and team-play in handling available plant. But in the facing of problems and difficulties that confront the industry as a whole and call for common action on lines of foresighted statesmanship with a sinking of subordinate differences, the tradition of individualism has proved too strong to be resisted.

It is this tradition that is the essential weakness in the industry today just as it was in early days the force that gave us the railroad system that we now enjoy. It

is this tradition which must be modified, materially modified, if the industry is to function in full health and vigor in the face of its new competitors, and the restrictions of legislative and administrative regulation. And it is in the direction of the necessary modification that the Lisman proposals are pointed. If they look impossible in the light of past experience then we must take another look in another light. Lots of things were done in the war which were known to be "impossible," and they were done by those who did not know that they were impossible, just because they did not know it. What we need in the railroad industry today is something of that state of mind and something of that approach—*something, in short, of that kind of "ignorance."*

Abolition of wasteful competition within the industry itself, intelligent, united, concentrated action looking to improvement and protection of the rate structures, continuous scientific research looking to the constant improvement of mechanical plant and methods, together with an enlightened and utterly frank treatment of public opinion are the immediate tasks which the logic of the facts imposes upon railroad managers. To show that the methods proposed by Mr. Lisman for this accomplishment are impracticable will not remove the necessity for that accomplishment. The question will still remain—if not this way of doing it, then what? No amount of Q. E. D.'s will get rid of that question. If the Lisman way will not do, another must be found; he has correctly and clearly indicated the goals to be attained.

New Thinking, New Methods Needed

If in what has been thus far said there appears to be the implication that railroad management has been and is more seriously in default of its duties than any other class in the community, the fault is with this writer whose intent was very far from suggesting any such idea. Quite the contrary is the fact; performance of railroad management will stand comparison with any and all performances in any sphere of action in this country—political, financial, or what you please—and will stand in no need of apologies. What this writer intends to suggest is that the railroad industry is at a critical stage in its life owing to emergence of new conditions, and that it must meet the new conditions with such change in its thinking and its methods as those new conditions impose. The essential change that is required in its thinking is recognition of the fact that the common interests of the carriers are more important to each and every one of them than are their individual differences, and the essential change in methods is whatever may be found practicable to place those common interests in the forefront of action with subordination thereto of the individual differences.

It is not an academic question by any means, nor is it a question that can safely be debated indefinitely as to ways and means. The condition of railroad credit precludes that. Speaking broadly, our railroads must in the future for the most part appeal to the "secondary bond market" and the stock market for their new capital; only a few can make "first class" bonds. At present the market is emphasizing very sharply the distinction between the two classes of bonds. This distinction must be lessened if railroads are to finance with reasonable ease. Nothing would so swiftly operate to lessen it as would evidence that the industry is alive to the opportunity which its present emergency presents.

THE ESTABLISHMENT OF 41 NEW INDUSTRIES along the lines of the Delaware, Lackawanna & Western during the year 1930 was accomplished by the Industrial department of the road.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading again declined in the week ended April 4, partly on account of the observance of religious holidays. The total was 728,511 cars, as compared with 740,079 the week before. This was a decrease of 197,548 cars as compared with the corresponding week of last year and of 229,714 cars as compared with 1929. All commodity classifications showed reductions as compared with 1930 but grain and grain products showed a slight increase as compared with 1929. The loading for the week of March 28 had also shown a decrease as compared with the preceding week. The summary, as compiled by the Car Service Division of the American Railway Association, for the week ended April 4 and also for the week ended March 28 follows:

Revenue Freight Car Loading

| Districts | Week Ended Saturday, April 4, 1931 | | |
|----------------------------------|------------------------------------|------------|------------|
| | 1931 | 1930 | 1929 |
| Eastern | 169,909 | 207,358 | 228,172 |
| Allegheny | 144,900 | 187,262 | 198,333 |
| Pocahontas | 42,051 | 51,826 | 49,231 |
| Southern | 120,755 | 144,902 | 157,616 |
| Northwestern | 85,428 | 110,332 | 113,076 |
| Central Western | 103,084 | 130,889 | 132,643 |
| Southwestern | 62,384 | 75,490 | 79,154 |
| Total Western Districts | 250,896 | 316,711 | 324,873 |
| Total All Roads | 728,511 | 908,059 | 958,225 |
| Commodities | | | |
| Grain and Grain Products | 36,674 | 40,370 | 35,731 |
| Live Stock | 19,582 | 22,482 | 23,604 |
| Coal | 118,421 | 134,028 | 132,317 |
| Coke | 7,678 | 10,495 | 11,995 |
| Forest Products | 31,092 | 56,961 | 69,104 |
| Ore | 5,569 | 10,505 | 11,124 |
| Mdse. L.C.L. | 225,463 | 254,916 | 267,142 |
| Miscellaneous | 284,032 | 378,302 | 407,208 |
| April 4 | 728,511 | 908,059 | 958,225 |
| March 28 | 740,079 | 885,324 | 969,196 |
| March 21 | 741,942 | 875,385 | 962,400 |
| March 14 | 734,262 | 881,308 | 958,601 |
| March 7 | 723,534 | 873,716 | 947,539 |
| Cumulative total, 14 weeks | 9,994,550 | 12,177,243 | 13,111,753 |

| Districts | Week Ended Saturday, March 28, 1931 | | |
|--------------------------------|-------------------------------------|---------|---------|
| | 1931 | 1930 | 1929 |
| Eastern | 169,772 | 203,485 | 230,180 |
| Allegheny | 149,687 | 181,319 | 200,174 |
| Pocahontas | 43,101 | 50,651 | 49,377 |
| Southern | 124,363 | 143,978 | 158,036 |
| Northwestern | 84,334 | 102,654 | 115,633 |
| Central Western | 105,676 | 128,783 | 135,266 |
| Southwestern | 63,146 | 74,454 | 80,530 |
| Total Western Districts | 253,156 | 305,891 | 331,429 |
| Total All Roads | 740,079 | 885,324 | 969,196 |
| Commodities | | | |
| Grain and Grain Products | 36,902 | 38,033 | 39,452 |
| Live Stock | 19,434 | 23,576 | 23,593 |
| Coal | 126,292 | 147,528 | 126,436 |
| Coke | 6,992 | 10,431 | 11,571 |
| Forest Products | 34,797 | 55,661 | 71,155 |
| Ore | 6,183 | 9,254 | 11,888 |
| Mdse. L.C.L. | 222,528 | 245,265 | 266,139 |
| Miscellaneous | 286,951 | 355,576 | 418,962 |

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended April 4 totaled 45,322 cars, a decrease of 4,094 cars from the previous week and a decrease of 13,084 cars from the same week last year.

| | Total Cars Loaded | Total Cars Rec'd from Connections |
|------------------------------|-------------------|-----------------------------------|
| Total for Canada | | |
| April 4, 1931 | 45,322 | 29,494 |
| March 28, 1931 | 49,416 | 30,167 |
| March 21, 1931 | 49,661 | 30,016 |
| April 5, 1930 | 58,406 | 38,882 |
| Cumulative Totals for Canada | | |
| April 4, 1931 | 653,117 | 394,609 |
| April 5, 1930 | 798,540 | 516,489 |
| April 6, 1929 | 868,790 | 605,044 |

THE SOUTHERN'S passenger and freight traffic offices in New York City are now located at 500 Fifth avenue, corner of Forty-second street.

Expand

Lift Truck and Skid Handling

on the Milwaukee

Storing and shipping in containers growing
factor in stores work on this road*

By J. V. Miller,

Assistant General Storekeeper, Chicago, Milwaukee,
St. Paul & Pacific, Milwaukee, Wis.



Lift Truck
Skids and
Trailers

OUR attention was attracted to the skid method of handling materials several years ago and we decided to give it a trial. Not wanting to invest a lot of money at one time, our initial installation was restricted to the hand lift truck and a minimum number of skids, and it was decided to confine the work for a time to a definite operation; otherwise, it would have been almost impossible to arrive at any conclusions as to the progress or savings.

Fortunately, our source of supply for brass castings was located in the same city as the general store. These castings were delivered to us by truck, and we decided to confine our initial efforts to this operation. The brass was loaded on the platform of the truck at the foundry, and the driver and three of our men unloaded it when it reached the storehouse. The truck load usually amounted to 12,000 lb. or more. A common two-wheel warehouse truck was used for conveying the brasses from the truck to the scale and then to storage. One hour or more was invariably required to perform this work.

The skids were then sent to the brass foundry and, instead of loading the brass on the floor of the truck, it was placed in the skids. These skids carried from 3,000 to 5,000 lb. of brass, and the truck was loaded with four skids. At our store-room, two men removed the loaded skids with a hand lift truck and put them in storage in about one-

sixth of the time required by the old method. After installing the first electric lift truck, one man performed the operation, and the time was again reduced.

Previously, scrap brass was accumulated and loaded into box cars, switched to a siding near the foundry, loaded on trucks, and unloaded at the foundry. Now, after the skid has been emptied of new brass, it is loaded with scrap brass, and whenever the truck arrives with new brass, it returns with an equal tonnage of scrap brass. This eliminates handling, car use, and switching and adds but little to the return cost of the truck.



Storing Material on Skids at the Milwaukee Stores—Note Types of Equipment Used

* From an address before the National Industrial Congress at Cleveland, Ohio, on April 14.

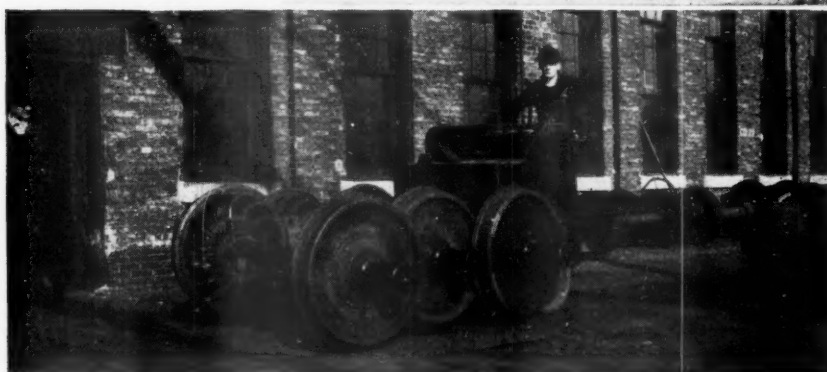
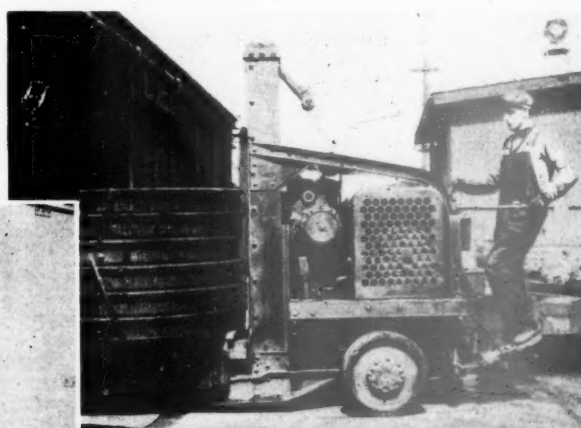
The experience in handling brass was so convincing that plans were immediately laid for extending the activities. Additional lift trucks and skids were provided, and additional items, such as brake shoes, brake beams, couplers, air hose and pumps were included in the materials handled with skids. In fact, the majority of our supplies were put into skids, insofar as they were available, and, at present, I believe we have the largest operation of this kind on any railroad and are still adding to our equipment.

For the first year or two, the skid operations were confined to inter-shop movement and movements around the larger stores in loading cars. After a skid was brought to a car, it was unloaded and made available for other material. We soon realized that we were not taking full advantage of skid movements. We were making large savings in loading material, but our method of unloading the material from the skid to the floor was costing money. To overcome this, we provided each store with a hand lift truck. Material was then left in the skid for movement to outlying store points, where it was removed from the car in minimum time and with little effort.

The return of the skids was another point. When skids reached an outlying point, it was necessary to unload them at once and place the material in storage,

When a skid is emptied, it is moved to the scrap dock and a sign is placed on it to designate what classification of scrap is to be loaded in it. This results in further economy, as it costs no more to place scrap in the proper skid than to throw it into a pile and sort it at a central dock. When the skids have been filled with sorted scrap, they are loaded, 24 to a car, and shipped to the central scrap dock at Milwaukee, Wis., where the entire carload can be unloaded and stored by one man and an electric lift truck in less than an hour. The classes of scrap which accumulate quickly are left in the skids, and, when sale orders are received, the skids are lifted and the contents dumped directly into the car. About two minutes are required to apply lift, dump and return the empty skids to the dock. The skids contain from 1,000 to 4,000 lb. of scrap, depending on the classification. With scrap that accumulates slowly, the skids are immediately dumped into bins and loaded by a magnet when full tonnage is obtained.

Lift Truck Operations
on the Milwaukee—
Note Handling of
Skids in Cars



which required additional handling to get the skids back to the central shipping store for another load. We were told that the return of the skids would be costly and might offset any savings that would be made. The solution of the problem, however, lay in not sending out more skids than could be returned with loads. Scrap metals accumulate at all points, and the skids are used for the return of this commodity.

As we added additional skids, the pressure of their immediate return eased up, and it was arranged that all materials which would be used in a reasonable length of time should be left in the skids until used so as to avoid all the handling possible. Shelf material is unloaded at once.

The many shapes and sizes of material handled made it necessary to develop special skids. We use the standard skid as the base, but design the upper structure to suit the material to be handled. Special skids are used for locomotive tires, brake beams, air pumps, oxygen, acetylene, air hose, etc. All of this material, when scrapped or returned for repairs, is in the same form as it was when new; therefore, no loss results in designing skids for the special purposes.

One of our latest ventures is the handling of oil on skids. Instead of using barrels, we have a container mounted on a skid, which holds seven barrels, or 350 gallons. The skids can be loaded 24 to a car, and maximum tonnage is obtained thereby.

We are attacking the problem of heavier car loadings with skids. Heavier loading reduces our costs, and also benefits the shipper. In a great majority of cases, heavy tonnage can be gained without the skid, but material in skids can be quickly gaged as to weight and the loading more accurately judged than when the materials are all mixed up on the floor of the car.

There are a number of things we cannot do with skids; consequently, we have a large fleet of trucks, tractors and trailers. We are changing our operations and experimenting with new methods almost daily and are meeting with success in the majority of our efforts.

(Mr. Miller's address was followed by a motion picture illustrating lift truck and tractor operations on the Chicago, Milwaukee, St. Paul & Pacific.—EDITOR.)

Taking Potatoes to Market

(Continued from page 758)

train proceeds to Presque Isle yard, where the accumulated loads are picked up. It then runs without further stops, via Mapleton, to a connection with the low grade line at Squa Pan, and proceeds then to the yards at Oakfield, which is the dividing point between the northern and southern divisions. This service is supplemented by a local train which runs from Van Buren via Stockholm, Washburn, and Mapleton, to Squa Pan and then to Oakfield, performing all pickup service at the local points.

The main line and branches between Presque Isle and Oakfield via Phair and Houlton are served in the following manner. One train a day operates pick-up service from Phair to Houlton and thence to Oakfield, also handling some of the potatoes brought in from the Fort Fairfield branch which joins the main line at Phair. This branch, 13 miles in length, produced 6,297 cars of potatoes during the 1929-30 shipping season. The remainder of the trains from the Fort Fairfield branch operate only between Phair and Fort Fairfield, but the potatoes are taken to Presque Isle by some of the northbound freights, either local or handling empty cars, and are there picked up by the Caribou loop or some of the through trains and taken into Oakfield. The line between Phair and Houlton, not including Houlton, a distance of 40 miles, produced 8,387 cars of potatoes during the 1929-30 shipping season.

During the rush season, two or more crews are also assigned to what is known as the Caribou loop service. These crews pick up loads at Caribou, proceed via Presque Isle and Mapleton to Oakfield, then double back to Caribou via the main line with empties. The northwestern section of the railroad, which produces relatively few carloads of potatoes, is served by a daily local which leaves St. Francis, and proceeds via Fort Kent to Squa Pan or Oakfield.

Under this plan of operation, there is little interference between northbound trains of empties and southbound trains of loads. In actual practice, all but one empty train run north from Oakfield via Houlton, and all but one loaded train run south via Squa Pan to Oakfield. Also, the northbound empty train that moves via Squa Pan moves in the morning and the loaded trains do not move until evening, so that there is no interference in this regard.

Handling Heavy Tonnage

Relatively few potatoes are shipped from the territory south of Oakfield, so that it is largely a matter of getting

the assembled tonnage from Oakfield to connections at Brownville Junction or at Northern Maine Junction. The increasing use of refrigerator cars has produced an increase in the average dead weight per car of 3.5 tons, with, of course, many additional dead weight ton miles because of this special type of equipment. Thus, the question of tonnage per train has become considerably more important in the past few years.

Between Oakfield and West Seboois, 58 miles, the ruling grade against the southbound loaded movement is one per cent and helper service is used out of Oakfield and also out of Millinocket. This helper service is inexpensive, since it is performed by yard engines at Oakfield and also at Millinocket, the location of the paper mills, where a considerable amount of switching is done. By this means, trains of up to 3,500 tons are being handled. From West Seboois to Northern Maine Junction, the Bangor & Aroostook has a relatively low grade line via Packards, Medford, and South Lagrange, 61.2 miles, and it is over this line that the tonnage has been developed to the greatest extent.

In order to obtain the necessary tonnage at West Seboois, a turn around run is operated from Oakfield to that point, just ahead of each through train, and the two trains are combined at West Seboois to make trains of from 5,800 tons to 6,500 tons to be handled from there to connections. The traffic that is destined for interchange with the Canadian Pacific at Brownville Junction is set out at Millinocket by the through train and taken to Brownville Junction on a turn around run. This traffic amounts to about one train a day. However, by far the bulk of the traffic continues on to interchange with the Maine Central at Northern Maine Junction.

The following examples show the tonnage handled. On April 26, 1930, train No. 28 handled 122 loads and 4 empties, a total of 126 cars, with an adjusted tonnage of 5,873 tons. On April 25, the same train handled 129 loads and 3 empties, total 132 cars, 5,819 tons. On April 18, No. 28 handled 113 loads and 25 empties, 138 cars, 5,801 tons. On September 12, 1930, train extra 101, handled 139 loads and 7 empties, total 146 cars, 5,823 tons. This being highly seasonal traffic, the tonnage varies considerably from month to month, depending upon the traffic moving. However, during the rush months, these potatoes are handled over the south end of the railroad in trains of 125 cars or over, and between 5,800 and 5,900 tons. Even under the severe winter operating conditions described in an earlier article, the tonnage seldom goes below 4,800 tons.

While the rush of seasonal business during the winter months is a considerable handicap to operation, it is of benefit in one respect. The B. & A., by reason of the seasonal fluctuation, is required to make frequent changes in the number of transportation employees in the service. As it happens, it is much easier for these men to obtain outside work in the summer time than it is in winter, and they return to the railroad year after year in the winter time. Thus, the B. & A. has available at all times a force of thoroughly experienced men to take care of increased business, and experience is a factor of prime importance, in view of the weather conditions under which the operations are conducted.

THE PITTSBURGH & WEST VIRGINIA, following completion of its 38-mile Connellsville extension, has also finished work on a short branch to the lines of the Donora Southern at Baird, Pa., thus connecting the American Steel & Wire Company's plants at Donora, Pa., with the new P. & W. Va. line. Service over the branch was inaugurated about the first of April, according to Pittsburgh newspaper reports.



Wilson Transportation Company Trucks at the Sioux Falls Station

Trucks Need Return Loads

Wilson Transportation Company, subsidiary of C., St. P., M. & O., barely able to pay expenses—Causes increase in carload business of railway at jobbing center

DURING 1929, the Chicago, St. Paul, Minneapolis & Omaha acquired the Wilson Transportation Company, which was operating 10 motor truck routes in the state of South Dakota. To these 10 routes it added a number of others, building up a substantial truck operating system. During 1930, the first full year of operation of the Wilson Transportation Company by the railway, the truck line had a surplus, after operating expenses and taxes, of \$1,283.33. Total revenues were \$217,570.24, including freight revenue of \$198,930.72, while operating expenses were \$206,658.09, and taxes were \$9,628.82.

The Wilson Transportation Company's operations also resulted in an increase in the carload business handled by the Omaha at Sioux Falls, the key point in the transportation company's truck-line system. The revenues at the Sioux Falls station of the railway have shown increases since the acquisition of the Wilson Transportation Company, a large percentage of these increases being directly attributable to the truck operation.

All of the outstanding capital stock of the transportation company, amounting to \$275,000, is owned by the Omaha. The investment in real estate and equipment aggregates \$223,386.26. Twenty-two routes are operated by the transportation company, these lines, in general, radiating from Sioux Falls to Sioux City, Iowa, on the south; to Yankton, S. D., Lake Andes, and Winner, on the southwest; to Mitchell, Chamberlain, and Pratt, on the west; to Brookings, on the north; to Pipestone and Mankato, Minn., on the northeast; and to Luverne, Minn., on the east. All of the routes are intra-state in character except four: One from Sioux Falls to Sioux City, Iowa, one from Sioux Falls to Pipestone, Minn., one from Sioux Falls to Luverne, Minn., and one from Brookings to Mankato, Minn. The last route was acquired through the purchase of an independent truck line on March 1 of this year. On all of its intra-state routes, the transportation company is operating under certificates issued by the South Dakota Board of Railroad Commissioners.

The basic policy of the truck company is that its lines shall not parallel or duplicate existing railway facilities,

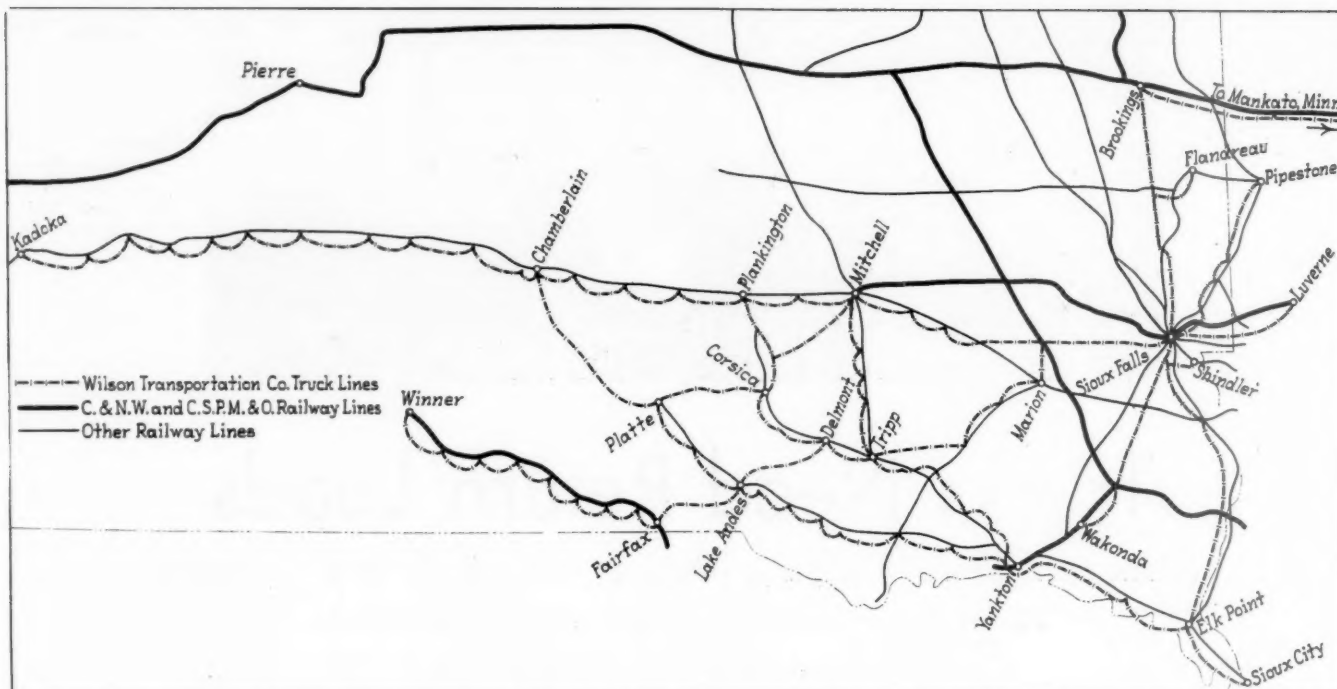
but instead shall provide a system of feeder routes. The accompanying map indicates the manner in which this policy has been developed, the truck lines for the most part radiating from points on the North Western and Omaha railway lines rather than paralleling these lines. The transportation company, even before it was taken over by the railway, took advantage of the fact that most of the railway lines in South Dakota run east and west, leaving an excellent opportunity to reduce distances and time involved in transportation across the state by means of north and south truck routes.

The present truck routes do not entirely conform to this policy of making the truck lines railway feeders, rather than railway competitors. Certain of the routes parallel railway lines, not only those of the North Western and the Omaha, but also those of the Chicago, Milwaukee, St. Paul & Pacific and the Great Northern. It is pointed out, however, that experience has shown that failure of a railway to operate parallel routes inevitably results in independent truck lines taking them over. Consequently the transportation company has retained certain routes which, if its policy were carried out to the letter would not now be in operation.

Not only does the transportation company haul freight locally from its stations, but it hauls freight also in conjunction with other truck lines on a division of the through rates. It secures a considerable quantity of freight at Sioux City, Iowa, which has originated at Omaha, Neb., and which has been brought to Sioux City by another truck company. It also acts as an intermediate carrier of freight originating at Sioux City and consigned to points beyond Winner, S. D. The largest item of traffic handled is foodstuffs, particularly perishables such as fruit and vegetables. The rates of the transportation company average 5 cents per 100 lb. over the railway rates on all classes of freight.

Equipment and Operating Costs

The transportation company operates 39 trucks, 2 tractors, 2 semi-trailers, and one 4-wheel trailer. The semi-trailers and the four-wheel trailers were put into service only recently. The trucks, in general, are of 2-tons and 3-tons capacity, with 6 ft. by 14 ft. by 7 ft.



Truck Lines of the Wilson Transportation Company and Their Relation to Railway Lines in South Dakota

bodies. Operating expenses per truck mile during 1930 averaged 23.109 cents. A total of 894,292 truck miles were operated during the year. Maintenance expenses were 5.250 cents per mile, including 2.712 cents for repairs and 2.534 cents for depreciation. Motor vehicle repairs, motor vehicle depreciation, and tires and tubes are charged off on a mileage accrual basis. Transporta-

| Operating Expenses Per Truck Mile in 1930 | |
|--|--------------|
| Maintenance | Cents |
| Building Repairs | .004 |
| *Motor Vehicles—Repairs | 2.712 |
| *Motor Vehicles—Depreciation | 2.534 |
| Total Maintenance | 5.250 |
| Transportation | |
| Drivers' Wages | 5.716 |
| Drivers' Expenses | .098 |
| *Tires and Tubes | 1.937 |
| Fuel and Power | 3.355 |
| Oil and Grease | .552 |
| Garage Expense | .554 |
| Service Motor Vehicle Expense | .011 |
| Other Transportation Expenses | .096 |
| Station Employees | 2.327 |
| Station Expenses | .879 |
| Loss and Damage | .195 |
| Damage to Property | .001 |
| Total Transportation | 15.721 |
| Traffic | |
| Traffic and Solicitation | .142 |
| Total Traffic | .142 |
| General | |
| General Officers' Salaries and Expenses | .699 |
| General Office Clerks' Salaries and Expenses | .214 |
| Stationery and Printing | .298 |
| Insurance | .583 |
| Rent of Equipment | .020 |
| Drivers' Profit Sharing | .124 |
| Miscellaneous | .035 |
| Law Expenses | .023 |
| Total General | 1.996 |
| Total Operating Expenses | 23.109 |

* Accrual basis.

tion expenses were 15.721 cents per mile, the larger items being 5.716 cents per mile for drivers' wages, 3.355 cents per mile for gasoline, and 1.937 cents per mile for tires and tubes. General expenses were 1.996 cents per mile, making the total operating expenses 23.109 cents per mile.

Concerning the results of the transportation company's operations, Carl R. Gray, Jr., vice president and general manager of the Omaha, and chairman of the

board of the transportation company, testified at a recent Interstate Commerce Commission hearing as follows:

"There was a necessity for the Omaha to do something at Sioux Falls to meet the competition of truck lines operating out of that city. The Omaha acquired, and is now operating, a rather large trucking company. It has adopted a policy which I believe to be correct, and the results from that operation show that, even with the most careful management and supervision, the trucking company favored with most of the business offered for truck haul is not capable of earning a sufficient amount above its operating expenses to pay a reasonable return upon its capitalization. While the transportation company has operated in the black, it has not carried itself.

Few Return Loads

"In my opinion there are several reasons for this. In the first place, while the tariffs are published with the four classifications of freight and are on an average 5 cents above the railway rates, this does not compensate the truck carrier in proper relation to the service rendered. By the very nature of truck hauling from jobbing centers to inland towns and to towns with railway service, the truck goes out from its point of origin loaded, but the real difficulty is to find a return load. Cream, butter, eggs and poultry are about all that can be back-hauled, and the trucks, as a general rule, are more than 75 per cent empty on all of their return movements.

There is not the merchandise to haul back that there is to go forward; and unless the rates for the forward movement are sufficient to pay for bringing the trucks back 75 per cent empty, there cannot be a sufficient income to pay interest on the investment after operating expenses and taxes have been taken care of. The officers of the trucking company have learned to their satisfaction that it is not profitable to operate truck lines in excess of 100 miles in length, because of the cost of the empty return movements, which bring about such a small rate per truck mile."

Railways Important to National Prosperity

THE vital importance of our railway network to national prosperity and the urgent necessity of solving present transportation problems through co-ordinative regulation, were stressed by Fred W. Sargent, president of the Chicago & North Western on April 8, in a broadcast over a coast to coast network of the National Broadcasting Company and associated stations. "Under normal conditions," said Mr. Sargent, "the railways make purchases exceeding two billion dollars annually from other industries, the workers of which depend upon these railway purchases for employment. Directly and indirectly the railroads in normal times give employment to more than 3,000,000 persons, who together with their families comprise about 13,500,000 of our entire population. The retrenchments in both employment and purchases that the railroads have had to make because of extremely poor earnings have now thrown about 500,000 persons out of work, and thereby directly and indirectly deprived more than 2,000,000 people of a livelihood. These workers can be put back to work only by an increase of railroad traffic and earnings.

"The railways still are and apparently for many years must continue to be our chief means of economical transportation for the great bulk of the country's commerce. Railways, however, like all other forms of business, are dependent upon volume if they are to hold down their unit costs of transportation and at the same time produce enough margin to pay service charges on bonds and fair returns to stockholders. It is, therefore, important that the people give earnest consideration to both local and national policies relating to the transportation problem as a whole so as to avoid unnecessary and costly duplication of service.

"It is imperative that the integrity of the vast investment in railway securities be protected; that the purchasing power of railroads be maintained, and that the ability of railroads to give employment to the armies of men and women dependent upon them for daily sustenance be sustained. Any other course will break down the efficiency of rail transportation and jeopardize the general prosperity of all. It is not the policy of railway managements to ask for governmental regulations improperly destructive to any other class of transportation that can support itself, measured by a fair comparative cost and tariff rates commensurate therewith. Railroads only ask for a free hand and an equal opportunity. They believe there is an abundant field for the operation of motor vehicles, but that it should be co-ordinated with rail service; that reasonable comparative regulation would inure to the benefit of all. It would help avoid costly duplications in service and thereby aid in reducing the nation's transportation bill. It would help the revival of prosperity, for it would encourage railroads to go forward with improvements that involve the purchase of materials and employment of labor. It is to be hoped we can undertake the solution of these problems in a friendly co-operative spirit, always keeping in mind first the public welfare that would be the direct and permanent beneficiary of a system of regulation that would co-ordinate rather than disintegrate rail, motor, water and air service.

"Each in its proper field means the greatest economy and efficiency for the public that must somehow, either by taxes or tariffs, pay the total charges. All in each

other's field means costly duplications, profits to none, and the loss of credit for all.

"I feel with confidence that if the people will view these problems in the light of their greatest ultimate personal interest and welfare and insist upon fair and equal governmental regulations, we will pass successfully through the present emergency, the integrity of railroad investments will be preserved, the prosperity of the country materially aided by making it possible for the railroads to prosper, and as a result great and helpful nation-wide service will be rendered in the interest of the prosperity of all classes of our people and all sections of our common country."

Safety Record of the Atlantic Coast Line*

THE Atlantic Coast Line, reporting the activities of its Safety Department for the year 1930, announces that the number of casualties to employees (on duty) in that year was only 1.66 per million man-hours worked, lower than that of any other Class I road reporting, and the lowest rate ever shown by any Class I railroad working over 50 million man-hours yearly.

The transportation department of the Third (Grand) division made a record of 1.61 per million man-hours and the presentation of a safety trophy to R. A. McCranie, assistant general manager of that division, was a principal feature of the celebration of this remarkable record, which was held at Jacksonville, Fla., on February 11. This celebration was participated in by about 250 officers and employees, mostly of the Third division; and also by many railroad men from other lines, the meeting being held in the afternoon following the meeting of the Regional Board, Safety Section, American Railway Association in the same city. Others receiving trophies besides Mr. McCranie were D. M. Landin, engineer maintenance of way; C. C. Blanc, superintendent; J. A. Archer, train master; E. F. Anderson, roadmaster; and S. G. Kennedy, master mechanic.

As will be seen by the record given below of casualty rates for eight years, the Atlantic Coast Line, like most other roads in the country, began the seven-year campaign at the close of 1923 with records of employees killed and injured which were anything but satisfactory. As stated by Robert Scott, director of insurance and safety of the Atlantic Coast Line, the end of 1929 was reached when this road, like most others, had made improvements in safety which in a superficial view seemed the irreducible minimum; had made improvements both in the habits of the men and in conditions of property and fixtures which left apparently but little hope of going further. But the Safety Department came to the conclusion that something more must be done; and, beginning with 1930, the company decided to compete in the National Safety contest; and thereafter officers and committees and all hands entered with enthusiasm into the effort to secure the National Safety Council trophy; a definite objective is essential

* The National Safety Council has issued a preliminary statement of its studies of the Interstate Commerce Commission records for 1930, in which the roads that stand first in the different groups are shown as follows: Group A, Union Pacific System, 2.01; Group B, Atlantic Coast Line, 1.66; Group C, Oregon-Washington Railroad & Navigation Company, 2.09; Group D, Los Angeles & Salt Lake, 1.32; Group E, Gulf, Mobile & Northern, 1.87; Group F, Staten Island Rapid Transit, 2.96; Group G, Texas Mexican, 3.01. The National Safety Council will announce its awards probably about the middle of May.



Bronze Plaque Awarded to Transportation Department,
Third Division

Robert Scott (right) congratulating R. A. McCranie, assistant general manager

to a successful program and this the action of the National Safety Council gave.

Safety Committees, under the leadership of company officers, were formed at all important terminals and shops. The duties of committeemen, who were selected from every branch of the service, consisted principally of seeking out dangerous conditions and unsafe practices. This brought forth more than 30,000 written suggestions and recommendations, all of which were handled to a satisfactory conclusion. More than two and one-half million posters, bulletins and other bits of printed matter were distributed, many of the posters being works of art.

Thorough and persistent investigation of accidents, was inaugurated, tending to make all employees more careful. Through investigation the officers learn what men are the fittest, and the chronically careless or incompetent are shown up. The officers become familiar with the common as well as the exceptional accidents, and through this experience become better fitted for their positions and for advancement to greater responsibilities.

The Atlantic Coast Line News, an employee publication, was used extensively in broadcasting the safety record of districts and shops, thus creating a friendly spirit of rivalry. Considerable impetus was given to the safety movement by the announcement that three grand trophies would be awarded that division of the System making the best safety record in the transportation, maintenance of way and mechanical branches of the service. Other trophies were offered by division officers for outstanding accomplishment in accident prevention by various units. The trophy plan brought enthusiasm almost to the boiling point, says Mr. Scott, and even casual visitors on the road were impressed with the determined effort being made by the workers to eliminate avoidable accidents.

The grand trophies provided by the management were bronze plaques, depicting scenes particularly appropriate for the departments to which they were awarded. The executive vice-president's and the chief engineer's trophies were won by the third division, while the one offered by the general superintendent of motive power was won by the second division.

The record for the whole system, showing the num-

ber of casualties for each year and the rate based upon million man-hours worked shows:

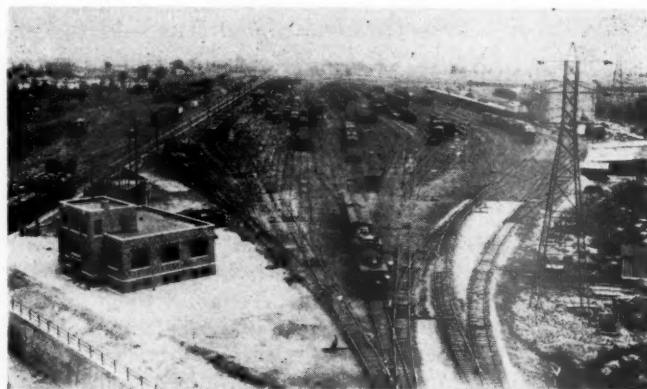
| Year | Number of Casualties | Casualty Rate |
|------|-------------------------|------------------|
| 1923 | 1,801 | 26.95 |
| 1924 | 1,482 | 22.50 |
| 1925 | 1,548 | 21.96 |
| 1926 | 1,360 | 17.74 |
| 1927 | 963 | 14.05 |
| 1928 | 683 | 11.21 |
| 1929 | 429 | 7.38 |
| 1930 | 89 | 1.66 |

The economic value of safety to the company is worthy of note. Payments for injuries to persons during the ten-year period, ended December 31, 1930 were: total payments from 1921 to 1930, inclusive, \$6,076,801, or an average of \$607,680 per annum; total amount paid during the year 1930, \$287,277, or 52 per cent below the ten-year average. This saving was the result of fewer and less serious injuries, and was accompanied by a corresponding reduction in losses to the physical properties of the company. The low casualty rate of 1.66, for 1930 compares with the next best record of 1.95 made by another railroad system of similar size in what is known as Group B, comprising all Class I railroads in the United States having between fifty million and one hundred million man-hours.

In a statement issued to the employees Superintendent Scott says: "It is gratifying to win trophies in national competition. But winning trophies is not the chief objective of safety campaigns. The railroad has benefited in the reduction of train accidents which is traceable to this work, and increased confidence on the part of the public. The employees have benefitted in that there are numbers of men working who, at our old accident rate, would have suffered injury or death during the past several years. The public has benefitted by the increased safety of our service. It is evident that an employee who is concerned with his own safety will be concerned with the safety of the people who ride in our trains and of the merchandise which he handles * * *"

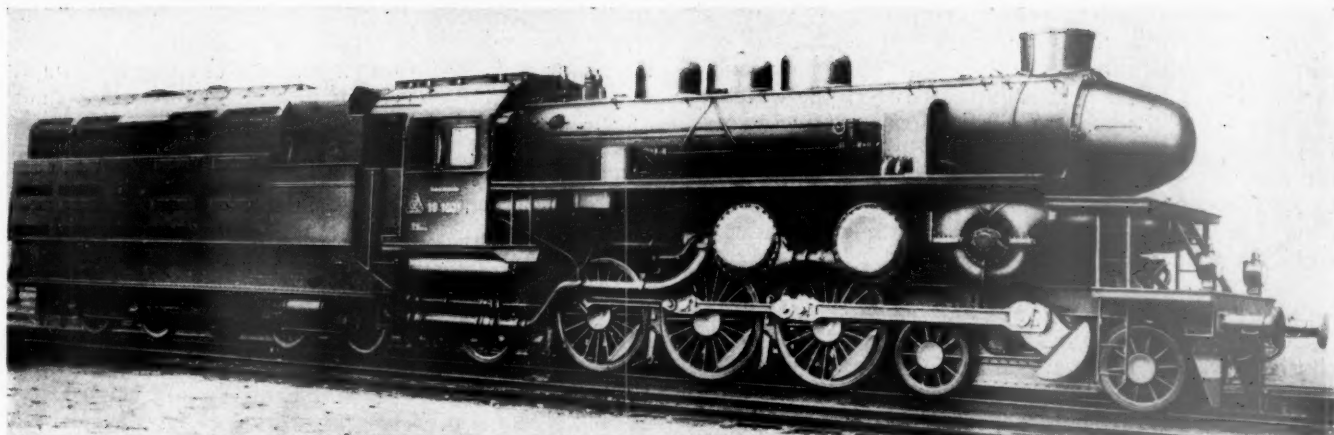
THE CENTRAL OF GEORGIA, in a recent advertisement published in newspapers along the line of the road, calls attention to the fact that the best efforts of a capable organization are devoted to the utmost improvement of the company's safety record. In the year 1930, certificates showing a 100 per cent safety record were awarded to no less than 626 of its supervisory officers. Each one of these reported that the men under his supervision went through the 12 months without accident or injury.

* * *



Eastbound Classification Yard of the Wabash at Oakwood, Mich.

At the left is part of the westbound manifest yard, in the foreground, the Oakwood yard office, and at the right, the icing facilities and stock pens.



Krupp-Zoelly Turbine Locomotive on the German State Railways

Krupp-Zoelly Turbine Locomotive

Tests by German State Railways in fast passenger service show economies in fuel and water

By R. P. Wagner

Superintendent, Locomotive Department,
German State Railways

WHEN, in 1922, the German State Railways contemplated ordering its first steam-turbine locomotive thorough study was devoted to the merits of the several designs then in existence. It was agreed that no higher boiler pressure should be used than in ordinary practice in order to obtain a clear result from the exclusive utilization of condensation, namely; from the lower end of the temperature drop. This conclusion was conservative but reasonable, as at the time no one knew anything about economically working exhaust turbines, and because the economy of the steam turbine was known to be inferior to the piston engine at high pressures, but considerably superior to them at pressures around and below the atmosphere.

The necessity of condensation thus established, the novel elements of the locomotive were the turbine, the condenser and the air cooler for reclaiming the condenser water. The Ljungstrom system of condensing the steam by a dry stream of air meant a considerable saving in boiler water, as all the water of the engine circuit was condensed without any losses. But the condenser, due to the low specific heat of the air, required obviously an immense surface exposed to the air. Therefore more space and weight than was available on the locomotive proper. It also required, for forcing large quantities of air through the condenser, a fan of unusual capacity and of a greater steam consumption than seemed to befit any auxiliary engine. Moreover there was neither sufficient space on the engine nor weight allowance for the condenser. On the other hand, the placing of the condenser on the tender demanded imperatively that the turbine should be placed upon the same vehicle, as the pipe line for the exhaust steam leading from a turbine placed on the engine to the tender would have interfered badly with the vacuum and would have required a complicated flexible joint between the two, a joint

hardly reliable in a vacuum line. For this reason Messrs. Ljungstrom arranged their turbine on the tender, next to the condenser. But this ingenious solution of the problem would hardly appeal to the railroad expert who does not care to see the locomotive pushed from the rear at high speed. This arrangement also included a flexible steam pipe under boiler pressure leading from the boiler to the main turbine on the tender.

The First Zoelly Turbine Locomotive

The design first brought forth by Dr. Zoelly, of Zurich, Switzerland,* opened another way towards a solution more palatable to a railroad man. The turbine was to be arranged on the locomotive in very much the same position as the ordinary locomotive cylinders, with water-cooled condensers closely attached to them. The condensers were, on the water side, supplied with ordinary feed water, which was taken from the tender and, after passing the condensers, was pumped back to the tender. This arrangement contained also a re-cooler for the cooling water, but it could easily be placed upon the tender and, as the condensing water would hardly be heated up to more than 140 deg. F., it could not deposit any scale in the condenser. Consequently raw water from the tender tank could be employed for the purpose.

In countries where water is scarce this cooling water could be re-cooled by air in a closed cooler like Ljungstroms', but this cooler would not have to contain a vacuum. This makes the design and maintenance of the

* A description of the first Zoelly turbine-driven condensing locomotive appeared in the November 15, 1924, issue of the *Railway Age*, page 875. The Maffei turbine locomotive, No. 18-1002, which is being tested along with the Krupp-Zoelly locomotive, No. 18-1001, was described in the January 22, 1927, issue, page 295. Reports of the progress being made with the Krupp-Zoelly locomotive have appeared in a number of issues of the *Railway Age* since 1924. This article, by Mr. Wagner, reports the progress and developments made on locomotive No. 18-1001 up to the present time.

many joints of such a cooler comparatively easy. In countries where water is abundant an open cooling system may be substituted, for this type of closed air cooler, in which most of the heat is extracted from the water by evaporation. This process requires comparatively small fan capacity so that, roughly speaking, one quarter of the heat is absorbed by the air draft, whereas from 70 to 75 per cent of the quantity of water which is condensed in the clean-water circuit is evaporated and absorbs three-quarters of the waste heat.

Alterations to the Krupp-Zoelly Locomotive

Because of its obvious advantages this system was chosen for the first test, and a high-speed passenger locomotive of 2,000 hp. capacity was ordered from Fried. Krupp Aktiengesellschaft, the German licensees of the Zoelly system. It was finished for the Seddin Railway Exposition, which was held in October, 1924, and made some preliminary trips over the road. After that it was sent back to Krupps' and was there subjected to thorough stationary tests of the boiler and turbine, in which the side rods were disconnected and the jack shaft was connected to electric generators.

The result of these tests was that the system in itself proved entirely satisfactory. Besides some minor details, three parts of the system required major altera-

should be provided. In the case of the existing locomotive it was resolved to retain the back turbine in its initial shape and to shut off its exhaust opening by a hand-operated shutter consisting of half-moon blades made of sheet metal. This alteration proved reasonably satisfactory.

The tender formerly had a spray system in which the drops of water fell a considerable distance to afford sufficient contact with the air blown upwards. Considerable water was entrained by the air and caused a shower to fall on the coaches behind the locomotive. Another sprinkler was therefore employed, in which the water drips into layers of Raschig rings arranged on perforated trays. These rings are designed to provide a large surface to the water and air. Scarcely any water is entrained with the present system, as it clings to the ample surfaces provided. This alteration did away with most of the trouble.

On completion of these changes in construction, the locomotive was subjected to thorough road tests by the testing department of the German State Railways, which is in possession of several complete dynamometer cars. These tests proved that the guaranteed fuel limit was attained. Moreover they proved that this turbine locomotive is at present the most economical locomotive on the system, whatever may be said about the complications necessary to obtain the result. The locomotive was formally accepted and assigned to the Essen division, where it hauls fast passenger trains between Hanover and Aix-la-Chapelle.

Features of Construction and Performance

The Krupp-Zoelly locomotive is a Pacific type with a permissible weight on each wheel of about 22,000 lb. The boiler is similar to the ordinary German locomotive boiler but for two exceptions:

First, the grate area and the heating surface seem smaller than suitable for a boiler of 2,000 hp.; the anticipated saving of never less than from 10 to 12 per cent of the heat accounts for this fact.

Second, the boiler is not equipped with a feed dome as is German practice, because the feed water makes a closed circuit and is pure when it enters the boiler. Instead of the feed dome another steam dome is arranged on the back course which serves an unusual purpose. As it would be wasteful to use water from the closed circuit for heating purposes a small boiler holding raw water for train heating is placed in this dome and exposed to the steam of the main boiler. The drop in temperature is sufficient to maintain in the heating system the regulation pressure of 70 lb. per sq. in. The small quantity of pure water required for making up losses in the closed circuit (for leakages, fan turbine and safety valves blowing off, altogether from 3 to 5 per cent, is also taken from this boiler after being purified of scale-forming material.

The front end is essentially different from conventional design. The ring-shaped economizer is placed ahead of the superheater header and the cylindrical opening in its center is closed by means of a removable diaphragm, so that the gases are forced through the ring chamber, where they hit against the water pipes.

The tender, which is heavier than ordinary tenders, is carried on two four-wheel trucks and is entirely enclosed. The raw water supply is partly evaporated, part used for train heating and for feeding the closed circuit. As this consumption should not be more than three quarters of the water consumption of an ordinary locomotive a tank holding 4,500 gal. was considered sufficient. The fuel supply is contained in a closed bunker

Principal Dimensions and Weights of the Krupp-Zoelly Turbine 4-6-2 Type Locomotive

| | |
|--|---------------------------------|
| Railroad | German State Railways |
| Builder | Fried. Krupp Aktiengesellschaft |
| Service | Experimental passenger |
| Type of locomotive | 4-6-2 |
| Road Number | 18-1001 |
| Tractive force | 27,500 lb. |
| Maximum speed | 68 m.p.m. |
| Weights in working order: | |
| On drivers | 130,900 lb. |
| Total engine | 247,500 lb. |
| Tender | 155,000 lb. |
| Total engine and tender | 402,500 lb. |
| Wheel bases: | |
| Rigid | 12 ft. 1-11/16 in. |
| Total engine | 32 ft. 5 3/4 in. |
| Driving wheels, diameter outside tires | 64-15/16 in. |
| Boiler: | |
| Steam pressure | 213.3 lb. |
| Fuel, kind | Soft coal |
| Flues, diameter | 4-15/16 in. and 5 3/4 in. |
| Tubes, diameter | 1-3/16 in. and 1 1/2 in. |
| Grate area | 33.4 sq. ft. |
| Heating surfaces: | |
| Evaporative | 1,668.5 sq. ft. |
| Superheating | 710.4 sq. ft. |
| Combined superheat and evaporative | 2,378.9 sq. ft. |
| Turbine and condenser: | |
| Revolutions of main turbine | 3,000 r.p.m. |
| Ratio of gear between turbine and jack shaft | 1:24.3 |
| Condenser surface | 2,368.15 sq. ft. |
| Tender: | |
| Water capacity | 4,500 gal. |
| Fuel capacity | 6.5 tons |

tions to attain the economical limit for acceptance. These parts were the economizer, the turbine for backward motion and the water cooler on the tender.

The economizer, in which the boiler feed water was to be heated by combustion gases, was formerly placed crosswise the engine under the barrel of the boiler. The combustion gases, after passing the flues, were forced back from the front end through a square channel and, after passing the economizer, were returned to the front end and to the suction fan through another channel. This arrangement proved unsatisfactory and was replaced by an economizer in the front end shaped somewhat similar to a Coffin feedwater heater.

The back turbine mounted on the shaft of the forward turbine and acting during the forward motion somewhat like a rotary compressor moving in vacuum, consumed more power than anticipated. The rule for any future design deduced from the tests was that either the number of disks of this turbine (whose economy is not over-important) should be reduced to one or two or that instead of a back turbine a reversing gear

and amounts to 6.5 tons of coal. The larger portion of the tender is occupied by raw water cooling equipment.

All of the tests made with this locomotive were made on the road. The figures for steam and fuel consumption per drawbar-horsepower-hour were influenced slightly by the varying air resistance. At a speed of 37.5 m.p.h. the steam consumption of the locomotive was 22 lb. at 500 hp. This consumption decreased to 16 lb. when the locomotive was exerting 1,000 hp. at the drawbar. At a speed of 50 m.p.h. the steam consumption at 500 hp. was 23.5 lb. which was decreased to 18 lb. at 1,000 h.p. At 62 m.p.h. the locomotive used 26 lb. of steam at 500 h.p. and 21 lb. at 1,000 hp. The boiler efficiency of 81 per cent showed the favorable influence of using pure water on heat transmission. The efficiency of 81 per cent was obtained at one-third of the normal load, and the efficiency curve dropped at a remarkably slow rate to 79 per cent at full load. The general trend of boiler efficiency, with the draft produced by a fan, is similar to that of the boiler of a reciprocating locomotive, and proves that the combustion and boiler efficiency are not influenced by the number and nature of the impulses from the exhaust nozzle, but depends solely on the rate of combustion and the velocity of the combustion gases.

Curves showing the steam consumption at 37.5 m.p.h., 50 m.p.h. and 62 m.p.h. were somewhat unusual owing to the fact that steam is admitted to the turbine either through the small set of nozzles, through the large set, or through both sets of nozzles. The figure of 14.25 lb. of steam per drawbar horsepower-hour is the lowest ever obtained on a steam locomotive. The fuel consumption per horsepower-hour at 37.5 m.p.h. was 2.3 lb. at 500 hp. at the drawbar and 1.7 lb. at 1,000 hp. At a speed of 50 m.p.h. the locomotive consumed 2.6 lb. of coal at 500 hp. which decreased to 1.8 at 1,000 hp. At 62 m.p.h. in exerting 500 hp. at the drawbar the coal consumption was 3.1 lb. decreasing to 2.25 lb. at 1,000 hp.

Accident Report for 1930

THE number of passengers killed in train accidents in the United States in 1930, as reported by the Interstate Commerce Commission in its preliminary annual statement, issued last week, was only seven, which is three less than in the low-record year of 1927; and the 1927 record, it will be recalled, was far below any previous one. The annual average for the five years preceding 1927 was 77, and the records farther back would show still higher averages. This circumstantial evidence of the increasing safety of railroad travel has now continued for so long that even the thoughtless or indifferent must take notice. The number injured shown in this 1930 record, 790, is more than 50 per cent below 1929. There was a reduction in passenger-train mileage which must be considered, and it is to be expected that the final report will show additional deaths among passengers who are here recorded as injured; but a great improvement in safety remains, nevertheless.

Table A, shown below, gives the principal totals for 1930 and for the two years next preceding. The total number of passengers killed, all causes, is exactly one-half the total in 1929. The reductions in nearly or quite all items, which cover employees, are in part due obviously to the falling off in railroad traffic and in the number of men employed. The number of man-hours worked in the 12 months was 3,641.4 millions, which is

about 14 per cent less than the total in 1929. A diminution in casualty percentages greater than in the number of hours worked is to be expected in the years when business is slackening. A reduction in forces ought naturally to weed out careless men, and even if the percentage of careless ones remains unchanged there is no doubt a reduction in hurry and worry, which tends to promote carefulness.

Among the notable items are: 36 per cent decrease in employees killed in train service; 31 per cent decrease

Table A.—Casualties on Railroads, Three Years

| | 1930 | | 1929 | | 1928 | |
|--------------------------------------|--------|--------|--------|--------|--------|--------|
| | Killed | Injd. | Killed | Injd. | Killed | Injd. |
| Passengers | | | | | | |
| In train accidents..... | 7 | 790 | 36 | 1,742 | 16 | 1,404 |
| Train service accidents.... | 43 | 1,875 | 61 | 2,101 | 67 | 2,055 |
| Total train and tr. serv.. | 50 | 2,665 | 97 | 3,843 | 83 | 3,459 |
| Non-train accidents..... | 0 | 515 | 3 | 528 | 2 | 568 |
| Grand Total, passengers.. | 50 | 3,180 | 100 | 4,371 | 85 | 4,027 |
| Employees | | | | | | |
| In train accidents..... | 129 | 633 | 160 | 1,005 | 138 | 1,126 |
| Train service accidents.... | 583 | 12,900 | 909 | 20,965 | 824 | 22,465 |
| Total train and tr. serv.. | 712 | 13,533 | 1,069 | 21,970 | 962 | 23,591 |
| Non-train accidents..... | 223 | 21,792 | 279 | 38,120 | 281 | 46,101 |
| Grand Total, employees.. | 935 | 35,325 | 1,348 | 60,090 | 1,243 | 69,692 |
| Other Persons | | | | | | |
| In train accidents..... | 160 | 359 | 130 | 537 | 118 | 343 |
| Train service accidents.... | 4,249 | 9,005 | 4,836 | 10,349 | 4,981 | 9,994 |
| Total train and tr. serv.. | 4,409 | 9,364 | 4,966 | 10,886 | 5,099 | 10,337 |
| Non-train accidents | 87 | 1,561 | 82 | 1,648 | 82 | 1,505 |
| Grand Total, "other persons" | 4,496 | 10,925 | 5,048 | 12,534 | 5,181 | 11,842 |
| Total, All Classes of Persons | | | | | | |
| In train accidents..... | 296 | 1,782 | 326 | 3,284 | 272 | 2,873 |
| Train service accidents.... | 4,875 | 23,780 | 5,806 | 33,415 | 5,872 | 34,514 |
| Total train and tr. serv.. | 5,171 | 25,562 | 6,132 | 36,699 | 6,144 | 37,387 |
| Non-train accidents | 310 | 23,868 | 364 | 40,296 | 365 | 48,174 |
| Grand Total | 5,481 | 49,430 | 6,496 | 76,995 | 6,509 | 85,561 |

in total employee casualties (14.54 minus 4.58 = 9.96). The total of employees killed per million man-hours was 0.26 as compared with 0.32 in 1929; injured 9.70 as compared with 14.22.

The total number of persons killed, all classes, all causes, in 1930 was 15.63 per cent less than in the preceding year; and of injured 35.80 per cent.

Casualties at grade crossings are included in the above record under two heads, (a) train accidents; (b) train service accidents. These two items together include an aggregate of 2,020 persons killed at crossings as compared with 2,485 in the preceding year; injured, 5,517 compared with 6,804. Of the victims at highway crossings, there is a percentage classed as trespassers viz: 66 killed and 100 injured in 1930 and 87 killed and 158 injured in 1929.

* * *



In the Classification Yard of the Peoria & Pekin Union at Peoria, Ill.

Rail Production Decreases in 1930

THE production of steel rails in the United States last year amounted to 1,873,233 gross tons, a decrease of 848,905 gross tons or 31.2 per cent under the output in 1929, according to statistics issued by the American Iron & Steel Institute, New York. This production was the smallest for any year since 1897. Rails weighing 100 lb. and less than 120 lb. per yd. were produced in the amount of 835,496 gross tons, a decrease of 398,103 tons, or 32.2 per cent, from the output of this classification in 1929.

The production of rails weighing 120 lb. per yd. and over totaled 592,933 gross tons last year, a reduction of 241,672 tons, or 28.7 per cent, under 1929. This marked the first year since 1927 that this classification failed to

| Years | Under 50 pounds | 50 and less than 85 | 85 and less than 100 | 100 and less than 120 | 120 pounds and over | Total gross tons |
|-------|-----------------|---------------------|----------------------|-----------------------|---------------------|------------------|
| 1917 | 308,258 | 882,673 | 989,704 | 763,526 | 2,944,161 | 2,944,161 |
| 1918 | 395,124 | 665,165 | 888,141 | 592,462 | 2,540,892 | 2,540,892 |
| 1919 | 263,803 | 495,577 | 965,571 | 478,892 | 2,203,843 | 2,203,843 |
| 1920 | 489,043 | 433,333 | 952,622 | 729,118 | 2,604,116 | 2,604,116 |
| 1921 | 211,568 | 214,936 | 902,748 | 849,566 | 2,178,818 | 2,178,818 |
| 1922 | 265,541 | 274,731 | 728,604 | 902,900 | 2,171,776 | 2,171,776 |
| 1923 | 272,794 | 300,907 | 864,965 | 1,465,850 | 2,904,516 | 2,904,516 |
| 1924 | 191,046 | 213,274 | 853,431 | 1,175,581 | 2,433,332 | 2,433,332 |
| 1925 | 163,607 | 219,648 | 765,371 | 1,636,631 | 2,785,257 | 2,785,257 |
| 1926 | 197,260 | 256,287 | 797,662 | 1,966,440 | 3,217,649 | 3,217,649 |
| 1927 | 161,836 | 173,257 | 539,445 | 1,314,424 | 2,806,486 | 2,806,486 |
| 1928 | 134,197 | 125,726 | 465,393 | 1,203,749 | 2,647,493 | 2,647,493 |
| 1929 | 141,362 | 102,944 | 409,628 | 1,233,599 | 2,722,138 | 2,722,138 |
| 1930 | 95,626 | 81,299 | 267,879 | 835,496 | 592,933 | 1,873,233 |

| Years | Open-hearth | Bessemer | Electric | Rerolled* | Total |
|-------|-------------|----------|----------|-----------|-----------|
| 1915 | 1,775,168 | 326,952 | ... | 102,083 | 2,204,203 |
| 1916 | 2,269,600 | 440,092 | ... | 144,826 | 2,854,518 |
| 1917 | 2,292,197 | 533,325 | ... | 118,639 | 2,944,161 |
| 1918 | 1,945,443 | 494,193 | ... | 101,256 | 2,540,892 |
| 1919 | 1,893,250 | 214,121 | 50 | 96,422 | 2,203,843 |
| 1920 | 2,334,222 | 142,899 | 297 | 126,698 | 2,604,116 |
| 1921 | 2,027,215 | 55,559 | 5 | 96,039 | 2,178,818 |
| 1922 | 2,033,000 | 22,317 | ... | 116,459 | 2,171,776 |
| 1923 | 2,738,779 | 25,877 | 118 | 139,742 | 2,904,516 |
| 1924 | 2,307,533 | 16,069 | ... | 109,730 | 2,433,332 |
| 1925 | 2,691,823 | 9,687 | ... | 83,747 | 2,785,257 |
| 1926 | 3,107,992 | 12,533 | ... | 97,124 | 3,217,649 |
| 1927 | 2,717,865 | 1,566 | ... | 87,055 | 2,806,486 |
| 1928 | 2,580,141 | 2,718 | 438 | 64,196 | 2,647,493 |
| 1929 | 2,662,163 | 3,486 | 723 | 55,766 | 2,722,138 |
| 1930 | 1,834,933 | 2,137 | 45 | 36,118 | 1,873,233 |

* Rerolled from old steel rails.

| Years | Total production Gross tons | Production by alloys | | Production by processes | | Production by weight per yard | | | | |
|-------|-----------------------------|----------------------|--------------|-------------------------|----------|-------------------------------|----------------|-----------------|------------------|-------------------|
| | | Titanium | Other alloys | Open-hearth | Bessemer | Under 50 lbs. | 50 and 85 lbs. | 85 and 100 lbs. | 100 and 120 lbs. | 120 lbs. and over |
| 1921 | 6,276 | 2,804 | 3,472 | 6,276 | ... | ... | 71 | 4,277 | 1,928 | ... |
| 1922 | 3,163 | 2,493 | 670 | 3,163 | ... | ... | 321 | 835 | 2,007 | ... |
| 1923 | 2,142 | 346 | 1,796 | 2,142 | ... | ... | 56 | 317 | 1,769 | ... |
| 1924 | 5,167 | 1,696 | 3,471 | 5,167 | ... | ... | ... | 847 | 4,320 | ... |
| 1925 | 4,009 | 1,616 | 2,393 | 4,009 | ... | ... | 70 | 47 | 3,892 | ... |
| 1926 | 4,216 | 1,099 | 3,117 | 4,216 | ... | ... | 42 | 1,027 | 3,147 | ... |
| 1927 | 1,265 | ... | 1,265 | 1,265 | ... | ... | ... | 374 | 391 | 500 |
| 1928 | 6,453 | 3,711 | 2,742 | 6,453 | ... | ... | 29 | 879 | 1,652 | 3,893 |
| 1929 | 1,965 | 486 | 1,479 | 1,965 | ... | ... | 100 | 748 | 967 | 150 |
| 1930 | 4,687 | 517 | 4,170 | 4,687 | ... | ... | 146 | 885 | 1,137 | 2,519 |

show an increase. The output of rails weighing 100 lb. per yd. and over totaled 1,428,429 gross tons, a reduction of 639,775 tons, or 30.9 per cent, under 1929. However, the production of this classification last year was 76.2 per cent of the total output, as compared with 75.9 per cent in 1929, the highest previous figure.

The production of alloy steel rails last year amounted to 4,687 gross tons, an increase of 2,722 tons over 1929. The output of titanium rails increased from 486 tons in 1929 to 517 tons in 1930, while manganese rails (10 per cent and over manganese) increased from 1,379 tons in 1929 to 3,983 tons last year.

Looking Backward . . .

Fifty Years Ago

The Georgia was leased to the Central of Georgia for 99 years on April 1 through a stockholder of the latter company. The effect of the lease will be to concentrate the Central of Georgia, the Georgia and the South Carolina [now part of the Southern] and their dependencies into one system extending between Charleston, S. C., and Atlanta, Ga., and between Savannah, Ga., and Eufaula, Ala., with a connection from the latter line at Macon, Ga., to Atlanta, a total of about 1,700 miles.—*Railroad Gazette*, April 15, 1881.

During the past two years the mileage of narrow gage roads in the United States has increased from 4,188 to 5,962 miles. Within the same period narrow gage roads having a mileage of 667 have been either changed to standard gage or purchased by standard gage companies which are about to change them. The narrow gage lines thus far constructed in the United States total 6,629 miles, or about 7 per cent of the total railway mileage of the country. This narrow gage mileage is distributed among 149 companies.—*Railway Age*, April 21, 1881.

Twenty-Five Years Ago

The appalling calamity of earthquake and fire which on April 18 involved a large area of the business section of San Francisco in ruin does not appear to have caused material property loss to the railways terminating on San Francisco bay.—*Railway Age*, April 20, 1906.

The first passenger train to enter the new Union station under construction at Washington, D. C., arrived on April 12. It consisted of a day coach, a Pullman car and a locomotive, with the president, several directors and a number of engineering officers of the Pennsylvania.—*Railway and Engineering Review*, April 21, 1906.

E. P. Bracken, heretofore assistant superintendent on the Chicago, Burlington & Quincy at Lincoln, Neb., has been promoted to superintendent of the Sterling division at Sterling, Colo. Paul Shoup, assistant general freight agent of the Oregon Railroad & Navigation Company, has been appointed assistant general passenger agent of the Southern Pacific at San Francisco.—*Railway Age*, April 20, 1906.

Ten Years Ago

President Harding, in a brief discussion of the railroad situation in his address to Congress on Tuesday, probably disappointed numerous believers in legislative panaceas when he declared that "railway rates and the cost of operation must be reduced," without recommending any additional legislation to accomplish such a result.—*Railway Age*, April 15, 1921.

E. R. Oliver, freight traffic manager of the Southern, Lines West, has been elected vice-president, with headquarters at New Orleans, La. H. C. Pearce, general purchasing agent of the Seaboard Air Line, has resigned to become director of purchases and stores of the Chesapeake & Ohio, with headquarters at Richmond, Va.—*Railway Age*, April 15, 1921.

The slump in the volume of railroad freight traffic which has occurred since the peak of last Fall, is probably the worst that has been experienced in recent history of the railroads, for which comparable statistics are available. It is rather difficult to show whether it is any worse than that which followed the so-called bankers' panic of October, 1907, and it closely parallels the experience following the termination of the war in 1918, but it is now apparent that the reduction in railroad freight business has fallen from a higher point in 1920 to a lower point in 1921 than was the case in 1918-1919.—*Railway Age*, April 15, 1921.

Communications and Books...

Scientific Pricing and Merchandising Needed to Revive Passenger Traffic

NEW YORK.

TO THE EDITOR:

The simple truth is that passenger business in this country is in a mess. If all the facts were known, it would probably be found that it is being conducted at a loss or, at best, at a profit so small that it is not worth considering. When an industry in which billions of dollars are invested and tens of thousands of men engaged reaches such a condition as that, one is justified in saying there is something wrong with the industry itself or with the way it is managed. There is nothing wrong with this industry. It is as essential as any other. Inferentially, there must be something wrong with the way it is conducted. What is wrong? A good many things. Lack of imagination is one. Lack of audacity—a willingness to experiment with new methods—is another. Almost universal acceptance of the belief that "nothing can be done about it" is a third. But the principal thing that is wrong with passenger business is that no resolute and intelligent effort is being made to find the answers to such questions as these:

Has the established rate of 3.6 cents a mile justified itself either from the standpoint of producing the greatest possible revenues for the railroads or from that of giving the greatest possible satisfaction to the traveling public?

In other words, is 3.6 cents a mile the "right" rate?

If it is not the right rate, what is? 2 cents a mile? $2\frac{1}{4}$? $2\frac{1}{2}$? $2\frac{3}{4}$? 3 cents? Or what?

Is there such a thing as a "right" rate—that is, a rate which should apply everywhere, at all times of day, week, month and year?

If there is not, why not say so and thus clarify the situation?

There are good reasons for believing that there is not and never can be any such thing as a rate for passenger transportation which is "right" under all conditions any more than there can be a "right" price under all conditions for shoes or clothes or eggs. "But," someone says, "passenger transportation isn't a product, it is a service." True! Let us consider it in that light.

The telephone and telegraph companies do not sell products. Like the railroads, they render a service. The charges they make for the service they render vary with varying conditions. In New York we pay \$4.25 a month for the use of a residence 'phone and are allowed only so many calls a month. People who live in small towns upstate pay \$2 a month and get what amounts to unlimited service. Again, if I call Baltimore at four o'clock this afternoon, I pay 90 cents for three minutes use of the telephone company's facilities but if I use those same facilities at any time between 8:30 p. m. and 4:30 a. m., I pay only 55 cents. A ten-word telegram filed at eleven o'clock this morning and addressed to a friend in Los Angeles costs \$1.20; a ten-word night message costs only 60 cents. The motion-picture theatres do business along somewhat similar lines. Between one o'clock and six, the admission charge is 65 cents; in the evening, it is a dollar. So-called "legitimate" theatres have as many as three prices—one for matinees, another for Monday, Tuesday, Wednesday and Thursday evenings and a third for Friday and Saturday evenings. Gas and electric light companies offer substantial reductions to large users. In certain cases, gas companies have a lower price for gas used for cooking or heating than for illuminating. Why these variations? For two reasons—(1) partly, to lighten the "load" during "peak" hours and (2) to create business during "off" hours when, if some inducement is not offered, there might be no business.

What these and other service-enterprises do is this: In fixing prices, they take into consideration the factor of *time*. They do something else—they strive for *volume* because they know that if they get it, unit-cost will be reduced proportionately.

In fixing passenger rates, few railroads pay any attention

to the factor of time—and less to the desirability of decreasing unit-cost by increasing volume. Whatever the established rate may be, it applies morning, noon and night—this week, next week, and the week after. Conditions change. Rents rise and fall. Prosperity ebbs and flows. Wheat brings \$3 a bushel one year and 75 cents a bushel another year. Eggs are priced at 90 cents a dozen at one time and place and at 11 cents a dozen at another time and place. Bacon, shoes, coffee, clothes, motor cars, lumber, real estate, lard, pork, beef, sugar, silk, hides, radios, paper, steel, iron, copper, bonds, stocks, labor—the price of everything you can think of swings from one extreme to another. Except railroad passenger rates. They are unchanged and apparently unchangeable.

One could understand—even admire—this Rock-of-Gibraltar attitude if the railroads could truthfully say: "Passenger business gets better and better. It shows a gratifying increase year after year." They cannot say that. Year after year, it shows a decrease. If this decrease is not checked—and soon—passenger business will take its place with dying or decrepit industries. What makes a bad situation worse is that hardly anybody in railroad service seems to believe that improvement is possible.

Thirty years ago, the telephone industry was in just such a rut as passenger business is in today. A man named Vail—Theodore N. Vail—put it on its feet. The tools he used were imagination, conviction, enthusiasm and an open mind. He realized that in a service enterprise, the time element is all important and he strove mightily for volume because he knew that as volume increases, unit cost decreases.

What passenger business needs today is a Theodore N. Vail.

What follows is an attempt—necessarily, far from complete—to indicate what he might do.

He would begin by challenging all accepted traditions, beliefs and ideals as to how passenger business should be conducted. For he would know that these traditions, beliefs and ideas, as a whole, are not soundly based because passenger business, as a whole, is in a highly unsatisfactory condition.

He would ascertain, by tests and experiments, made under varying conditions and in different parts of the country—and of course, with the approval of the Interstate Commerce Commission—if increased revenue for the railroads and greater satisfaction to the public would—or would not—follow the adoption of some of the methods in use in other countries. These, for example:

Reduced rates for round trip tickets sold after 1:00 p.m.—perhaps also after 6:00 p.m.—and good to return only on date of issue;

Issuance of 5-, 10-, 15- and 30-day tickets useable at holder's pleasure;

Reduced rates for week-ends;

Stop-overs at pleasure;

Round-trip rates at holiday times which are low enough to encourage travel;

"Market Day" rates.

He would make an exhaustive and unprejudiced study of the surcharge which occupants of sleeping and parlor cars must pay.

He would investigate the possibilities of the "Ro-railer" with which British railroads are now experimenting.

He would consider what might be done in the way of "pooling" train-service between such cities as Chicago and St. Paul, Chicago and Omaha, Chicago and Kansas City, St. Louis and Kansas City and New York and Buffalo. He would know, without being told, that a considerable percentage of the trains in service between these—and many other—cities are being operated at a loss. And he would determine, by test and trial, if a third or a fourth of them could not be discontinued without injustice to the public.

He would probably urge that railroad advertising at competitive points be "pooled" for he would know, without being told, that present methods are destructive—that they "cancel out."

He would consider the desirability of abolishing ground-floor offices in "off-line" cities because it is doubtful if one in twenty pays its way.

With the co-operation and approval of the Interstate Commerce Commission, he would try to ascertain whether 2 or $2\frac{1}{4}$ or $2\frac{1}{2}$ or $2\frac{3}{4}$ or 3 or $3\frac{1}{4}$ or $3\frac{1}{2}$ cents a mile is the rate which most nearly meets the requirements of today—to produce the greatest revenue for the railroads and the greatest satisfaction to the public. To satisfy himself on that point, he would have to conduct innumerable experiments under widely different conditions. Even so, the undertaking should be worth while. Billions of dollars are at stake.

J. M. CAMPBELL.

Circuses Abandoning the Railways

HARVARD UNIVERSITY.

TO THE EDITOR:

The enclosed clipping* is taken from the Boston Herald of March 29. I have no idea how valuable these circus movements have been to the railways, from a revenue standpoint. However, if the information in this article is reliable, the number of "railroad circuses" has been reduced from 16 to 5, while this year, 34 three-ring circuses will move over the highway. The handicap of the railways for these movements seem primarily the hauling to and from the tracks through city traffic. On the other hand, picture the state of mind of the ordinary motorist when he comes upon a circus caravan of 25 or more trucks barging along the road ahead of him. I suppose the cat is out of the bag for good and the number of circuses traveling by train will certainly not increase, no matter what positive action the railways might take. If this transportation has been really profitable, however, I believe measures should be taken to keep the staunch "five" definitely on the rails.

One might expect that once the local haulage problem had been improved upon, rail transportation at passenger train speeds would be economically ideal for such a bulk movement. Railway responsibility, by keeping loss and damages down, and the potential speeds available on the railway, by increasing the time that a circus might be earning revenue, should make the railway once more attractive to the circus manager for all but the shorter trips. If this traffic is actually worth soliciting, the necessary rate compromise could probably be reached.

JAMES SLOSS.

* Mr. Sloss enclosed a clipping of an article by Earl Chapin May outlining the great growth of the motorized circus.

Taxing Land, Not Improvements, Would Save Roads \$117,000,000

NEW YORK.

TO THE EDITOR:

The Bureau of Railway Economics reports that Class I railroads in 1930 paid \$353,000,000 in taxes, a decrease of 12 per cent under 1929.

According to the federal valuation review dated October 15, 1930, the final reports issued covering steam railroads (59 per cent of total mileage) show "present value of land, including rights" \$1,689,219,164.

Roughly calculated, 100 per cent mileage would show \$2,800,000,000—of which the \$353,000,000 taxes paid are about 12 per cent.

The undersigned committee is leading a movement throughout the nation to have taxes transferred from improvement values to land-values, which for the whole United States total around \$140,000,000,000. Total public expenditures are around 8 per cent of this figure, so that on a comparative basis the railroads are paying about \$117,000,000 per year in excess of the fair value of benefits received, which land-values reflect.

Not only does this mean that the railroads are paying half again as much more than they should in taxes, but also that industrial production everywhere is likewise handicapped and the quantity of goods for shipment thereby reduced.

We should like to be in communication with executives interested to know more about this. Questions may be addressed to Room 200, 2 East Twenty-third street, New York City.

EASTERN STATES TAXPAYERS COMMITTEE,
Gladwin Bouton, Secretary.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian,
Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Coronado's Children—Tales of Lost Mines and Buried Treasures of the Southwest, by J. Frank Dobie. Useful for bringing spring fever to an acute stage. "The Engineer's Ledge" in Chapter 9 may rouse memories along the Southern Pacific. Illustrated. 367 p. Pub. by Southwest Press, Dallas, Texas. \$3.

Oil. "How crude oil is transported and stored," p. 97-112. "Petroleum from well to market," p. 145-160. 188 p. Pub. by American Petroleum Institute, New York City. 50 cents.

Railroad Regulation since 1920, 1931 Supplement, by D. Philip Locklin. This brings up to date, chapter by chapter, the original book published in 1928 and reviewed in the *Railway Age* of September 7, 1929, page 610. Pub. by McGraw-Hill Book Company, Inc., New York. Supplied to purchasers of book, price of which is \$2.50.

Rapport Sur L'Execution du Programme d'Amelioration des Chemins de Fer Roumains Pendant la Deuxieme Année d'Application du Programme de Stabilisation Monetaire. Rates, traffic, operating problems, financial results of the Rumanian Railways. 100 p. Pub. by Imprimerie des Chemins de Fer Roumains, Bucarest, Rumania. Apply.

Periodical Articles

Highway Transportation Subject of Investigation, by A. Lane Cricher. The Chief of the Transportation Division of the Department of Commerce outlines scope of the Division's highway transport study and other studies being made by his division. *United States Daily*, April 10, 1931, p. 10.

Investing in Railroads, by Ruth Boyle. Railroad problems and prospects outlined primarily for women. *Good Housekeeping*, April 1931, p. 106.

Liste des Lignes de Chemins de Fer et de Services Automobiles ou de Navigation Auxquelles S'Applique La Convention Internationale Concernant le Transport des Marchandises Par Chemins de Fer (C.I.M.) du 23 Octobre 1924 [as of January 1, 1931]. Important for those making a detailed study of freight transport in Europe by rail, water, or road. *Bulletin des Transports Internationaux par Chemins de Fer*, March 1931, p. 89-182.

Oil Pipe Lines—Our Smoothest, Most Silent Transportation, by Victor H. Scales. "Some 200,000 miles of pipe lines, built at an estimated investment of \$3,000,000,000, provide this country with an underground transportation service operating so silently and smoothly and efficiently it seldom is heard outside of the petroleum industry . . . New lines for 1931 will cost over \$300,000,000 . . ." *Industrial Digest*, April 1931, p. 15, 41.

Our Growing Tax Burden, by Lee G. Lauck. "... Back in 1894, when railway taxes averaged \$100,000 a day, they consumed \$3.41 out of every \$100 of gross revenues. In 1930 they absorbed \$6.60 out of every \$100 of revenues . . . To meet these 1930 taxes required the entire gross earnings of all the railways of the country for a period of more than three weeks . . ." *Barron's*, April 13, 1931, p. 5.

Picking Up Speed—One Hundred Years of Transportation, by Edward O. Kraske. A page of drawings showing transport development from the Indian travois to airplanes via modern railroads and ocean liners, and other forms. *Country Gentleman*, March 1931, p. 31.

What Future—Transportation? by Julius H. Parmelee. "... Predictions for the future range all the way from the pessimistic prophecy that the steam railway is doomed to an optimistic exhalation of confidence that rail traffic will regain its upward trend and continue to dominate the freight traffic field, and that these new elements of competition are evanescent in nature and will in time die of weakness and inanition. The real trend will doubtless lie between these two extremes . . . What we need most is a general recognition of the fundamentals, a statesmanlike approach to the remedies, and an unflinching application of the basic principles . . ." p. 40. *Industrial Digest*, April 1931, p. 12, 40.

Odds and Ends . . .

Ex-Railroader Now a Major Leaguer

Among the railway men holding down jobs in the major leagues, is Joe Sprinz, of the Cleveland Indians, who, not so long ago, was catching for the General Accounts team of the Missouri Pacific league at St. Louis, Mo.

Aid for Ex-Railroaders

Under the re-organization plan of the National Railways of Mexico, several thousand men were released from the service. President Rubio of Mexico has turned over two large haciendas, each several thousand acres in extent, to the use of these men for farming purposes, if they so desire.

Railways Plant Fruit Trees

More than 5,000 fruit-bearing trees and bushes were planted last year by the Swedish State Railways. Nearly 200,000 such trees have been planted up to the present time, making the government railroad board the largest gardening enterprise in Sweden. The trees are tended by railroad employees.

Record Collection of Railroad Passes

What is believed to be a record collection of railroad passes is described by H. F. Wilbor, of Erie, Pa., whose father, John B. Wilbor, one time general freight agent of the Sandusky, Mansfield & Newark, now part of the Baltimore & Ohio system, had 47 railroad passes from as many different railroads issued to him in his official capacity for the year of 1857.

A Michigan Broadcaster

HOUGHTON, MICH.

TO THE EDITOR:

In the issue of February 28, C. H. Swanson is referred to as being the only known railroader broadcaster. G. Y. Harris, Houghton, Mich., who has been a conductor on the Copper Range for over 30 years, is the owner of and has operated for about three years, radio broadcasting station 9DNE.

C. E. WRIGHT,
Auditor, Copper Range.

"Slow Motion" Strike Ends in Great Britain

A strike in Great Britain, variously termed as a "slow motion," "go slow" or "work to rules" protest against the recent wage reduction affecting railway employees, ended suddenly in a burst of speed on April 1, when the strikers decided to earn bonuses offered for faster work. The trouble started on March 30 at the Broad Street and King's Cross stations when 300 men belonging to the minority element protesting against the National Union of Railwaymen's acceptance of the reductions began a strict observance of the rules and regulations, many of which are obsolete. About 2,000 men succeeded in disorganizing train schedules at these two stations and hundreds of cars of perishable freight were allowed to stand unloaded on sidings. No effort, however, was made to interfere with workers sent from Smithfield and Billingsgate Markets to unload quantities of fish and meat left on sidings. The protest was not sanctioned by the union officials.

This Typewriter Has Passed the 30-Year Mark

PORT HURON, MICH.

TO THE EDITOR:

We have James Gedding, telegraph operator on the Pennsylvania at Reynoldsville, Pa., beaten on the Grand Trunk at Port Huron Terminal depot for veteran typewriters. Operator Charles E. Searles has 47 years' continuous service to his credit, and is still hale and hearty. He started pounding the key on

June 4, 1884, when the present road was known as the Chicago & Grand Trunk. He has served under 10 superintendents of terminals. He is still pounding out messages on an old blind Smith-Premier No. 2 which he purchased in 1898, some 32 years ago.

RUSSELL L. GIBBS,

Correspondent, Canadian National Magazine.

P. S.—He has already worn out one set of keys and a spacing bar and the typewriter still turns out good legible messages.

William Tell is Rolling Champ

Everybody knows about the famed William Tell, who shot an apple off his son's head with a bow and arrow, but the hero of this story doesn't have a bow and arrow and he eats apples instead of shooting at them. William Tell, carman helper at Columbus car machine shop of the Pennsylvania, claims the title of champion car wheel roller of the world. The skill in handling a car wheel, weighing approximately 600 lb., was demonstrated in a contest held recently in a Columbus theater, between employees of the Pennsylvania and the Norfolk & Western. The contest was the result of claims and counter-claims made by wheel rollers of the two railroads as to which had the better plain, as well as fancy, rollers. The theatre was obtained for the event and more than 600 enthusiastic rooters gathered. L. B. Jones, master mechanic of the Columbus shop, as master of ceremonies, gave a short talk, explaining the rules of the contest. He was followed by O. A. Wilson, foreman of the Columbus car department, who explained the intricacies of wheel rolling. The time limit for plain rolling was three minutes and the period set for fancy rolling was five minutes. The contestants in the plain rolling finished about equal. Excitement in the fancy rolling ran high when William Tell took the floor and kept his steel wheel spinning for nine minutes, excelling all other contestants by more than four minutes. To see Tell handle a 600-lb. wheel it appears that the wheel weighs only a few pounds. Mr. Tell received the prize—a championship belt, which he is ready to defend against all comers.

A "Flight" to Paris

One of the best things Charles Dickens ever wrote on transportation was the paper entitled, "A Flight," which appeared in Household Words in 1851. It is a bright and breezy account of a journey between London and Paris, performed in what was then regarded as the incredible period of 11 hours. All through the writer conveys the impression that he was so obsessed with the recollection of the older methods of travel—by mail coach and diligence—that he simply could not realize that at eight o'clock one very hot morning he was comfortably seated in an express train belonging to the South Eastern Railway "under the very hot roof of the terminus at London Bridge" and that, less than 12 hours later, he found himself, safe and sound, but obviously bewildered, in the French capital. En route we get some entertaining observations on passengers, tunnels, the flying landscape, "double-barrelled" stations, and so on. There was a five minutes' halt for refreshments at Tonbridge, and Folkestone was reached at "a quarter after ten." A lovely harvest day, a cloudless sky, a tranquil sea—Boulogne railway station! More refreshments, and the "flight" is resumed. Dickens asks—

What have the South Eastern done with the poor little villages we used to pass through in the diligence . . . where are the two-and-twenty weary hours of long, long day and night journey sure to be either insupportably hot or insupportably cold?

At this juncture a voice breaks in with "Paris! Here we are!" And so, enchanted, the master passes to his hotel and, presently, to bed, "blessing the South Eastern for realizing the Arabian Nights in these prose days," and murmuring as he wings his idle flight into the land of dreams: "No hurry, ladies and gentlemen, going to Paris in 11 hours."

NEWS

Supplemental Report Issued In Western Grain Case

The Interstate Commerce Commission on April 14 made public a supplemental report, dated April 10, in the western grain rate case, Part VII of Docket No. 17,000, for the purpose of clarifying in some instances and correcting and modifying in others the findings contained in the original report issued about a year ago in order to better effectuate its intent. The effective date of the order has been postponed several times and is now set for June 1. Several petitions for reconsideration have already been denied and in the supplemental report all others were denied, so that the general revision of rates on grain and grain products throughout the western district and for export is to become effective on that date on 15 days' notice. It is understood that the commission learned from conferences with carriers that there had been some questions as to the interpretations of the general findings in the original report and that the supplemental report was issued so that such matters could be straightened out before the tariffs are actually filed. In some cases the supplemental findings change the rates as set forth in the original report and several tables are included showing the prescribed and revised rates.

Distance rates, where conflicting therewith, are to be subordinated to prescribed group rates and rate-break combinations. Published through rates in conflict with prescribed rate-break combinations are to be cancelled. It is stated that the eastern lines should continue the equalization of the St. Louis and Chicago gateways on shipments from Kansas City to trunk line territory, on domestic shipments, pending an appropriate proceeding in respect of the eastern domestic rates. The criticism of transit, according to the supplemental report, specifically covered the number of stops and out-of-line and back-hauls, and did not warrant or justify a revision of general policing rules not the subject of this criticism. Any general revision of the rules should be published in such form as to permit of suspension and the application of the present rules to the prescribed rates if protests so warrant. The limitation of the number of transit stops without separate charge to a maximum of two, the report finds, does not require the granting of transit in connection with each through shipment from origin to final destination. The granting of transit will continue to be a matter for the consideration of the carrier in specific instances upon request. The finding that mixed feed con-

taining other than the direct products of grain must pay a flat rate from the point of manufacture is rescinded, and reasonable transit in the manufacture of mixed feed under the prescribed rates is permitted, pending a nation-wide investigation of the rates on mixed feed. Findings prohibiting the storage in transit of manufactured grain products are reversed and storage in transit is permitted at a separate charge of 2 cents per hundred pounds for each stop.

Low Week-End Fares in Canada

Reduced week-end fares, good between all stations in Canada and on trains between Friday noon and midnight of the Monday following, are being placed in effect on May 1 as an experimental measure by Canadian railways and will be continued during May, June and July. Announcement to this effect was made in Montreal following a meeting of the Canadian Passenger Association.

The new round-trip fare will be one and one-quarter times the present single fare between all points. Tickets will be good, going on trains leaving the station of sale from noon Standard Time on Friday to noon Standard Time Sunday, and return portions of the tickets will be good on trains leaving destination up to midnight Standard Time on the Monday following.

Store-Door Freight Service on Union Pacific

Through its motor coach operating subsidiary, Union Pacific Stages, Inc., the Union Pacific will soon offer freight service, including store-door pickup and delivery, of the type furnished by subsidiaries of the Southern Pacific in the west, and of the Texas & Pacific and other roads in the southwest. Union Pacific Stages will handle merchandise freight on its own bills of lading, providing for pickup and delivery service by motor truck at terminals and for transportation over the railway between terminals, the rates to be charged being the same as railroad rates for station-to-station service.

Tariffs will soon be filed by the Union Pacific Stages, and the service will begin between Portland, Ore., Hood River, The Dalles, Arlington, Pendleton, LeGrande and Baker on the main line of the Oregon-Washington Railroad & Navigation Co. It will also be offered at certain branch line points in central Oregon.

John W. Padden, who has been in charge of freight solicitation at Portland for the Oregon-Washington Railroad & Navigation Co., has been appointed general agent, freight department, of the Union Pacific Stages.

Pelley Sees Era of Co-ordinated Transport

An era of great co-ordinated transport companies embracing air, water and land carrier service was predicted by John J. Pelley, president of the New York, New Haven & Hartford, in the season's concluding Aldred Lecture at the Massachusetts Institute of Technology on April 10. Mr. Pelley spoke on the subject of "Railroads and Transport."

"I predict," said Mr. Pelley, "that the era starting now will be one of co-ordinating the various forms of transportation, that the railways will remain the central arteries and veins of commerce, that other agencies, the bus and truck and such inland waterways as are economically justified, will become the peripheral arteries and veins, and that eventually we shall see great transport companies operating all forms of transportation, including in addition to those just mentioned, air service and quite possibly ocean steamship service."

The necessity for co-ordinating the various forms of transport has been emphasized by business conditions during the past eighteen months, Mr. Pelley asserted.

"By co-ordination," he continued, "we mean that transportation should be furnished by the agency or combination of agencies that can provide the best service at the lowest cost. If the ideal situation can be worked out whereby every passenger travels and every pound of freight moves by the most economical means there will be no transportation problem."

In discussing the recent declaration of policy by railway executives, Mr. Pelley stated that railroads do not propose that any highway vehicle should be legislated off the highways or any ships off the water, but that they do insist that if regulation is a good thing for the railroads it is likewise a good thing for competing forms of transportation. Railroads should have the right to operate on the highways or on the water under precisely the same conditions as their competitors. Consequently, the railways offered suggestions relating to highway, waterway and pipe line transportation, all competing unfairly in some respects with the railways.

Wage Statistics for January

Class I railways have reported to the Interstate Commerce Commission a total of 1,333,820 employees as of the middle of the month of January, a decrease of 14.56 per cent as compared with January, 1930. The total compensation for the month was \$190,637,952, a decrease of 18.28 per cent.

Railroads Still Prime Transportation Agency in United States

"The railroads are in no danger of losing their position as the country's most important and dependable transportation agency," M. H. Cahill, president and chairman of the board of the Missouri-Kansas-Texas Lines, stated recently in an interview at Denison, Tex. "Our current problems are, of course, emphasized by changing conditions incident to development of highway and other methods of transport, but in the main there is no more reason for gloom in railroad outlook than there is for pessimism with respect to the future of American business. Competent authorities estimate that not to exceed 5 per cent of the freight service of American railroads could now be replaced by highway transport. So it seems to me that the railroads are secure in certainty that we should share with all other business in the revival of commerce activity surely ahead of us.

"Like all other business, the railroads are feeling the effects of the current commercial depression. Heavy losses of passenger traffic, coupled with smaller losses of freight revenue to unregulated and subsidized competitors, aggravate the present problem. It is unfortunate, from our viewpoint at least, that the railroads must adjust themselves to changing competitive conditions during a period of general business depression.

"No business is secure against the changes that accompany progress, however, and no seasoned railroad man hopes that his business can escape operation of natural laws affecting all enterprises. We must all adapt ourselves to changing conditions, and the railroad industry will meet new conditions in the same measure that it has met the country's expanding transportation requirements in the years of our greatest growth. In many respects the problems of readjustment to changing conditions are the problems of railroad management alone, but in certain of its phases this readjustment is a public problem. The public has surrounded conduct of railroads with regulations and restrictions from which our competitors on the highway are free. Correction of these unfair conditions is entirely within public control. The Katy experience has convinced us that we can successfully meet competition when given equal opportunity under the law through various readjustments of our methods, and I am confident that public fairness and public interest as well, will shortly secure to the railroads equal opportunity under the law with competitive forms of transport."

Engineers Conference

An economic conference for engineers will be held from August 30, and September 7, inclusive, under the joint auspices of the engineering alumni of Columbia University and of the Stevens Institute of Technology, at the Stevens engineering camp in northern New Jersey. Plans for the conference include a two-fold program—one, a course of lectures and seminars on some of the fundamentals of finance in engineering, and the other, a series of round table discussions on "The Business Cycle." Graduates of colleges

other than Stevens and Columbia, as well as junior members of the national engineering societies, are eligible to attend the conference.

I.C.C. Declines to Reconsider Western Trunk Line Class Rates

The Interstate Commerce Commission has denied various petitions filed by the western trunk lines, the lines in official classification territory, the Iowa and Nebraska state commissions and various chambers of commerce for a reopening, rehearing, reargument, reconsideration and modification and postponement of the effective date of the revision of class rates in western trunk line territory which it prescribed about a year ago. The effective date has been postponed several times but it was recently announced that the rates would be made effective on June 15 on 45 days' notice. The commission estimated that the revisions would increase the revenues of the western trunk line by \$10,000,000 to \$12,000,000 a year but the railroads objected on the ground that this estimate was optimistic and also because the increase in any event would be insufficient to offset the reduction in the western grain rates ordered to become effective on June 1.

Barge Canal Items

To the New York Herald Tribune:

I admit I do not know much about this water power issue. I was wondering, however, if it would not be well to ask the Governor, while he is talking to the public about the St. Lawrence River power development, to tell the dear public of the state what the taxpayers have expended in the development of the New York State Barge Canal, the amount of which from 1905 to 1929, inclusive, exceeds \$273,000,000.

The canal is designed for a maximum capacity of 20,000,000 tons. In 1926 (which proved to be the record year to that date) it carried 2,369,367 tons.

One good tonnage train a day on any railroad running across New York State could carry all the tonnage handled on the Barge Canal and is available 365 days a year, instead of only seven months of the year, as in the case of the Barge Canal, which the rest of the time is icebound.

Another interesting feature in which the public might be interested is the fact that the right of way of the canal was given to the operators thereon free of charge and that they are not subject to state taxes, while the railroads of New York State in 1928 paid taxes amounting to \$25,357,980, or \$3,230 a mile of line.

As another item of possible interest he might tell them it cost 19.41 mills a ton mile by canal and 10.90 mills a ton mile by rail.

L. K. MARR.

Increased Speed and More Liberal Stops Regain Passenger Business

The operation of well-equipped trains that make a liberal number of scheduled stops and a rate of speed between stations sufficient to compensate for stops at intervals of about 25 miles, will adjust passenger train service to meet specifically the new requirements of the present day and thus win back much short distance passenger traffic lost to the highways in recent years, according to H. E. Newcomet, vice-president of the Pennsylvania.

"Our experiments point the way to a solution of a problem that has bothered railroad men for years," says Mr. Newcomet. "With the rise of the motor car, local passenger train service of 1910 vintage has dwindled almost to extinction. In the same period, however, there has been a general increase in the patronage of long-distance passenger trains. It is in this gap between the milk train of fast-fading memory and the long-distance flyers that the new type service, attuned closely to the needs of the times, finds a warm welcome and profitable business. Although long-distance trains making a limited number of stops meet a definite need, they, nevertheless, run right by hundreds of potential patrons, whose transportation needs are not adequately served by the old style accommodation train.

"In the era before the motor car came into wide use," Mr. Newcomet continues, "stations were deliberately placed along a railroad at intervals of four to eight miles. The general idea was to enable farmers and others using the horse and buggy on unimproved roads to reach a railroad station in not more than two hours to board a local train for a comparatively short trip down the line.

"The widespread use of the private automobile and the extension of hard surface roads have made this set-up obsolete. In the time formerly required to reach the railroad station, the farmer now motors 35 to 40 miles to the county seat or other destination. Why use a slow local train for part of the trip, even if one is available?"

The answer, Mr. Newcomet asserts, is to provide train service adapted to the automobile age, forgetting about the local train of horse and buggy days.

One of the outstanding examples of the new type of local train service on the Pennsylvania is provided by the Mercantile Express, which leaves Pittsburgh, Pa., at 8:15 a.m. and reaches Chicago at 5:30 p.m. The elapsed time for this daylight run of 468 miles is 10 hr. 15 min. This train makes 12 regular stops, with four other conditional stops. Thus it provides convenient, high-speed service for nearly all county seats and other cities of importance.

One of the regular stops is a town with fewer than 5,000 inhabitants. Among the other cities where the Mercantile Express stops, the population ranges from about 8,000 to 115,000. The scheduled stops are Alliance, Canton, Massillon, Mansfield, Crestline, Lima, Van Wert, Ft. Wayne, Plymouth, Valparaiso, Gary and Englewood. The conditional stops are Beaver Falls, Salem, Bucyrus and Warsaw.

The length of the majority of the stages of the run is bracketed between 18 and 40 miles. The average distance between stops is about 27 miles. The scheduled running time between stations averages about 60 miles an hour. This train also carries through New York-Chicago cars, the schedule of which is 20 hr. 20 min. Thus there is provided a service that joins fast running time with a relatively large number of stops, while the arrangement permits residents within a radius of 20 miles to motor to a station in less than an hour to board a fast train for a longer trip which can be made more rapidly and more comfortably by train than by automobile.

Since the Mercantile Express was placed on its present schedule on July 28, 1930, its passenger train mile earnings have increased to a very profitable level, which it is maintaining, although passenger train earnings generally have declined in the same period. Eastbound service of similar character is provided by the New Yorker, No. 52, one of the Pennsylvania's 20-hr. trains between Chicago and New York.

New Wisconsin Commission Chairman

Theodore Kronshage has qualified as a member of the Railroad Commission of Wisconsin to succeed Adolph Kanneberg and has been elected chairman of that body.

Safety Section at Chicago May 19

The Safety Section of the American Railway Association will hold its eleventh annual meeting at the Stevens Hotel, Michigan boulevard and Seventh street, Chicago, on Tuesday, Wednesday and Thursday, May 19, 20 and 21.

Group Insurance

The Louisiana & Arkansas has contracted with the Metropolitan Life Insurance Company for group insurance, for the benefit of its employees, a total of about \$600,000 life insurance with an additional amount of \$600,000 to provide against accidental death or dismemberment. The Metropolitan Life Insurance Company maintains a visiting nurse service in more than 5,000 cities and towns in the United States and Canada.

Freight Traffic in February

Freight traffic moved by the Class 1 railroads in February amounted to 27,079,240,000 net ton-miles, according to reports compiled by the Bureau of Railway Economics. Compared with February, 1930, this was a reduction of 21.2 per cent, and it was a reduction of 29 per cent under February, 1929.

In the Eastern district, the reduction was 20.3 per cent compared with the same month in 1930; in the Southern 23.7 per cent, and in the Western 21.4 per cent.

For the first two months of 1931 the total was 57,387,606,000 net ton-miles, a reduction of 19.2 per cent under that of the corresponding period in 1930, and of 25.8 per cent under that of the same period in 1929. The Eastern district for

the two months shows a reduction of 19.3 per cent; the Southern district 21.5 per cent, and the Western 18.3 per cent.

Postponement of Cotton Rate Order Asked

The southern and southwestern railroads have asked the Interstate Commerce Commission to postpone from May 28 to June 15 the effective date of its order in Part 3 of the general rate investigation which requires a general readjustment of cotton rates in the South and Southwest. The postponement is asked because the roads have been unable to complete the work of revising the numerous tariffs involved.

Section Cars Collide on Southern

Two section motor cars carrying maintenance of way forces collided on the Southern between Burnside, Ky., and Tateville on April 10, resulting in the death of four and the injury of 14 employees, one of whom is not expected to survive. The accident occurred on a curve with the cars traveling between 15 and 20 miles an hour, and it was thought that the crews became confused as to which track of the double-track line each was using.

Correction

In the table of Revenues and Expenses of Railways for the month of February, which appeared in the April 11 issue of *Railway Age*, several figures reported for the Atchison, Topeka & Santa Fe were incorrectly shown. The operating ratio of this road for the month of February was 79.2, net from railway operation, \$2,322,726, operating income, \$1,362,532, net railway operating income, \$1,324,495 and net railway operating income for February, 1930, \$2,184,753.

Pacific Coast Shippers' Board

According to commodity committee reports prepared by the Pacific Coast Transportation Advisory Board, carloadings during the second quarter of 1931 will total 404,942 cars as compared with 390,987 cars actually handled during the second quarter of 1930, an increase of 3.6 per cent. With the exception of hay, iron and steel, forest products, packing house products and rice, all industries contemplate increased carload movements during the coming quarter.

Arbitrators Appointed for Four-System Plan

The eastern railroads that are working on a plan for asking the Interstate Commerce Commission to approve a grouping of the eastern roads into four systems have selected two additional arbitrators to decide on points still in controversy. Thomas W. Lamont, of J. P. Morgan & Co., and Thomas Gates, president of the University of Pennsylvania, have been chosen to decide on the disposition of the Virginian, the price to be paid by the Van Sweringen interests for stock of the Lehigh Valley held by Pennsylvania interests if that road should be allocated

to the Chesapeake & Ohio-Nickel Plate system, and the question of trackage rights for the Pennsylvania over the Lehigh Valley into Allentown and Bethlehem, Pa. George T. Slade had previously been selected as arbitrator to decide whether the Pennsylvania shall have trackage rights over the Nickel Plate along the shore of Lake Erie.

New York City Bus Traffic

Approximately 750,000 passenger buses crossed the Hudson river into New York City through the Holland tunnel and over interstate ferries during 1930, according to statistics recently issued by the Port of New York Authority. This figure, the Port Authority points out, means that about 1,000 bus trips are made in each direction during the 16 busy hours of the day. Approximately one-half of these buses, the statement continues, operate between points within the port district itself, while the remainder operate in long distance services to all points in the country.

Railway Employment in February

The number of employees in the service of Class I railways as of the middle of February was 1,316,435, according to the Interstate Commerce Commission's preliminary statement of railway employment. This was a further reduction of about 27,000 as compared with the number in January and was a decrease of 14.76 per cent as compared with the number in February last year. As compared with February, 1929, the reduction was 18.04 per cent. The number in the maintenance of way and structures group showed a reduction of 19.05 per cent as compared with last year and of 21.4 per cent as compared with 1929, while the number in train and engine service showed a reduction of 15.39 per cent as compared with last year and of 20.21 per cent as compared with 1929.

Arkansas Full-Crew Law Upheld

On the ground that Congress has not acted on the subject, by prescribing or empowering the Interstate Commerce Commission to fix the number of men to be employed in train or switching crews, the Supreme Court of the United States on April 13 upheld the validity of the Arkansas full-crew law, which had been attacked by the Missouri Pacific, affirming the decree of the district court for the western district of Arkansas which had dismissed the railroad's suit for a temporary injunction to restrain state authorities from enforcing the law. The validity of the law had been upheld in previous decisions in 1907 and 1916 as representing a valid exercise of the state police power but the railroad had contended that since those decisions Congress had occupied the field and that the state laws were repugnant to the comprehensive scheme of federal regulation prescribed by the interstate commerce act as amended and with the spirit of the railway labor act. The court said, however, that in the absence of a clearly expressed purpose

Continued on Next Left Hand Page

ARE YOU Losing Money in the Yards ?

WITH SUPER-POWER road engines, many railroads have materially reduced costs of handling trains on the road. But the yards are too often the recipients of power grown obsolete in road service. This power is equally obsolete for yard use and yard costs thereby suffer.

■ With 25 modern Super-Power Switchers, one road increased the capacity of 16 existing yards, and the resulting operating savings will pay for the engines in five years.

■ No railroad is justified in spending large sums of money for the conversion of worn out road engines into "make-shift" switchers, nor can it economically afford to operate old road engines in service for which they were never intended.

LIMA LOCOMOTIVE WORKS

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to do so Congress will not be held to have intended to prevent the exertion of the police power of the states for the regulation of the number of men to be employed in train crews.

Louisiana to Share Baton Rouge Bridge Construction Cost

The State of Louisiana, represented by the state highway commission, has reached an agreement with the Missouri Pacific and the Louisiana & Arkansas whereby the state will contribute \$2,500,000 as its share of the cost of construction of the proposed rail and highway bridge over the Mississippi river at Baton Rouge. Governor Huey P. Long announced this on April 8. The total estimated cost of the structure will be about \$8,000,000. Governor Long expects to ask the state highway advisory board for ratification of the expenditure at its May meeting, and at the same time will present plans for the rail and highway bridge to be constructed over the Mississippi river at New Orleans at a cost of between \$10,000,000 and \$15,000,000, and in which the State of Louisiana expects to participate to the extent of \$7,000,000.

New York Delivery Plan Opposed

Opposition to the plan of New York railroads for direct collection and delivery of carload freight in that city developed on April 14 at the first informal conference on the proposal between representatives of the carriers and of other interested parties.

The plan of the railroads, as pointed out in the *Railway Age* of April 11, page 727, contemplates the utilization of the Railway Express Agency as a trucking medium to serve patrons of all carriers. The Express Agency, would hold itself out to make deliveries from the Manhattan pier stations of the railroads, whereas those opposing the plan desire a system of direct delivery from the railheads, thus eliminating the pier stations.

Following the conference, representatives of the railways commenced a consideration of the objections voiced and further informal conferences on the plan are contemplated.

Motor Coach Regulation Law in New York

The New York Legislature has passed a bill placing common carrier motor coach companies under the jurisdiction of the Public Service Commission of that state. Governor Roosevelt advocated such legislation in a recent message to the legislature and thus it is believed that he will approve the measure.

The new law requires that motor coach companies obtain certificates of convenience and necessity and gives the commission authority to enforce just and reasonable rates and safe and adequate service. The commission may also require the keeping of uniform accounts and assume jurisdiction over security issues and mergers of motor coach companies. Under the act the commission may issue a certificate, under certain conditions, regardless of whether a town or village

gives its consent to an operation, but it may not do so in the case of a city. A bus line operating in both a city and outlying territory must obtain the consents of both territories before it can operate.

March Locomotive Shipments

March shipments of railroad locomotives from principal manufacturing plants, based on reports received by the Department of Commerce, totaled 10 locomotives, as compared with 15 in February and 70 in March, 1930. The following table gives the shipments and unfilled orders of locomotives for March, 1930 and 1931, the 1930 totals and totals for the first three months of the two years:

| Year and Month | Railroad Locomotive Shipments | | | | |
|-------------------------------|-------------------------------|-------|----------|---------|----------|
| | Domestic | | | Foreign | |
| | Total | Steam | Electric | Steam | Electric |
| 1931 | | | | | |
| March | 10 | 5 | 5 | ... | ... |
| Total (3 months) .. | 41 | 25 | 16 | ... | ... |
| 1930 | | | | | |
| March | 70 | 64 | 2 | 2 | 2 |
| Total (3 months) .. | 187 | 172 | 7 | 5 | 7 |
| Total (year) | 763 | 706 | 33 | 17 | 7 |
| Unfilled orders, end of March | | | | | |
| | Domestic | | | Foreign | |
| | Total | Steam | Electric | Steam | Electric |
| 1931 | 95 | 81 | 2 | 12 | ... |
| 1930 | 536 | 485 | 45 | 6 | ... |

Pacific Northwest Shippers' Board

Estimates prepared by the various commodity committees of the Pacific Northwest Shippers' Advisory Board indicate that shipments during the second quarter of 1931 will be approximately 8.9 per cent less than in the corresponding period of 1930, the estimated carloadings being 293,399 as compared with the actual loading of 322,047 cars in 1930. Increases are expected in canned fruits and vegetables, chemicals, dairy products, fertilizers, fresh fruits, furniture, grain, flour and milk products, livestock, paper, paper products and pulp, petroleum and its products, poultry and poultry products, the sugar industry and vegetables. Among the increases, the most interesting are the shipments of spinach, which this year are estimated to total 67 cars as compared with 10 last year, shipments of broccoli, which are expected to total 50 this year as compared with 13 last year, shipments of strawberries, which will total 120 cars as compared with 25 last year, and berries, which will total 75 cars this year as compared with 11 last year.

Motor Transport Division June Meeting Eliminated

The Motor Transport Division, American Railway Association, will not hold the meeting scheduled for Chicago on June 9-11. The decision to eliminate this session was reached by the general committee of the division, in accordance with the recommendation of the board of directors of the A.R.A. that during the present economic depression the divisions and sections of the association should reduce the number of their sessions to not more than one a year.

In order that the work of the division

may be carried on without interruption, however, the General Committee has called joint meeting of its members and the regional chairmen of the motor coach, motor truck and rail motor car sections, to be held in Chicago on June 16-18. At this meeting, subjects for report and discussion at the annual meeting of the division, to be held in November, will be given preliminary consideration and will be assigned to committees. The date and place of the November meeting will also be decided.

Pennsylvania Quickens Schedules

The Pennsylvania, with the issuance of its new time table on April 26, will shorten the running time of a number of its trains. The Rainbow, leaving New York at 10:35 p.m., standard time, will run through to Chicago in 20 hours, making four trains daily to Chicago at that speed. The American, New York to St. Louis, will run through in 22 hours, 50 minutes, or 10 minutes shorter time than at present. Other trains to have their time shortened are the Red Arrow, New York to Detroit; the Cincinnati Limited; the Keystone Express, leaving St. Louis at 9:10 a.m. and running through to New York 1 hour, 10 minutes quicker than now; and the Spirit of St. Louis, leaving St. Louis at noon. The Buckeye, from Cleveland to New York, will be made 50 minutes faster. The New Yorker, leaving Chicago at 10 a.m.; the Western Express, leaving New York at 6:25 p.m., and the Eastern Express, leaving Chicago at 3 p.m. will be made faster. The Broadway Limited and a number of other trains will start one hour earlier than now, so as to accommodate the departure to local "daylight saving" customs.

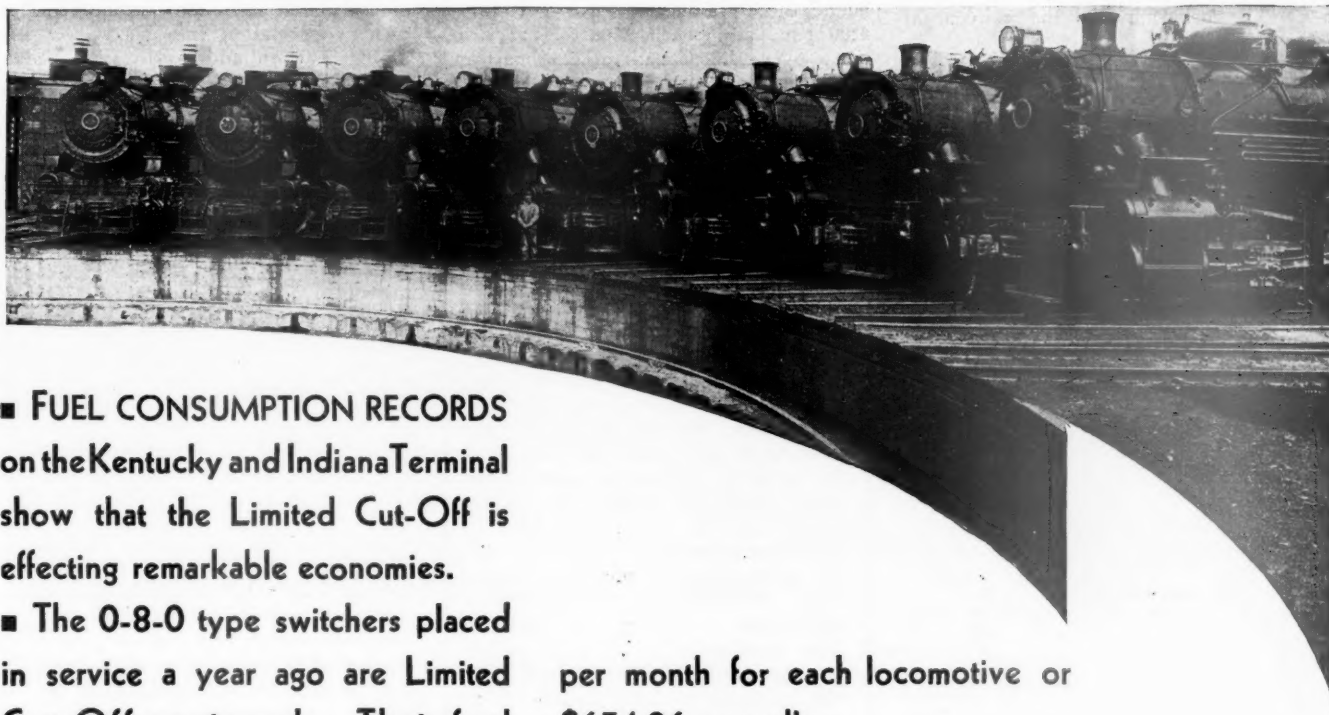
Port Authority to Break Ground for Terminal on April 30

Following the award to the Godwin Construction Company of New York of the contract for excavation and foundation work for the new union inland freight terminal to be built in New York City, as reported in the *Railway Age* of April 11, the Port of New York Authority has announced that official ground-breaking ceremonies for the building will take place on Thursday April 30, at 2:30 P.M. Among those who have been invited to speak at the ceremonies are Governors Franklin D. Roosevelt of New York and Morgan F. Larson of New Jersey; Mayor James J. Walker of New York City, and General W. W. Atterbury, president of the Pennsylvania and chairman of the Presidents' Conference Committee, New York railroads, all members of which have agreed to use the terminal for the handling of l.c.l. freight. John F. Galvin, chairman of the Port Authority, and Commissioner Howard S. Cullman, chairman of the committee on freight terminals, will also speak.

The new terminal will cost in the neighborhood of \$16,000,000, being financed by a bond issue sold by the Port Authority several weeks ago. The razing of buildings on the site has been recently completed and the Godwin Com-

THE LIMITED CUT-OFF

Returns **65.4%** on the investment
...on the Kentucky and Indiana Terminal



■ FUEL CONSUMPTION RECORDS on the Kentucky and Indiana Terminal show that the Limited Cut-Off is effecting remarkable economies.

■ The 0-8-0 type switchers placed in service a year ago are Limited Cut-Off equipped. Their fuel requirements, when compared to the 0-8-0 type engines of similar power, but with long cut-off, bought in 1926, reveal a saving of 20.5 tons of coal per month for each of the new switchers.

■ In the district where this road operates, fuel cost is approximately \$2.66 per ton delivered on the engine. The 20.5 tons of coal saved reduce the coal bill \$51.25

per month for each locomotive or \$654.36 annually.

■ Such a saving amounts to a 65.4% return on the investment required to incorporate the Limited Cut-Off. In 19 months, each installation will have paid for itself. Then, for the balance of its useful life, each switcher will continue to save this large amount annually.

■ Can you afford to overlook such an opportunity to reduce operating expense?

FRANKLIN RAILWAY SUPPLY CO., Inc.
NEW YORK CHICAGO SAN FRANCISCO ST. LOUIS MONTREAL

pany has begun the work of excavation. However, it was felt that April 30 would be the most suitable and convenient time for simple official ceremonies, especially as the latter date will mark the tenth anniversary of the establishment of the Port Authority.

Tie Producers' Convention

The National Association of Railroad Tie Producers will hold its thirteenth annual convention at the West Baden Springs Hotel, West Baden, Ind., on May 5-7. The program for the convention is as follows:

Tuesday morning, May 5

Address on The Shippers' and Manufacturers' Transportation Association—What it is and What It is Doing, by E. E. Pershall, president, T. J. Moss Tie Company, St. Louis, Mo.
Address on Gum Ties on the Frisco, by Linn L. White, chief clerk, tie and timber department, St. L.-S. F. St. Louis, Mo.
Address on Tie Futures and Prosperity, by R. D. Garver, senior forester, Forest Products Laboratory, Madison, Wis.

Wednesday morning, May 6

Address on Identification of Fungi and Stains Permissible Under Standard Crosstie Specifications, by C. Audrey Richards, pathologist, Forest Products Laboratory, Madison, Wis.
Address on Relative Merits of Different Kinds of Woods Used for Crosstie Production, by W. R. Goodwin, engineer of wood preservation, M. St. P. & S. S. M., Minneapolis, Minn.
Address on Necessity for Greater Care in Handling Ties From Time of Cutting Until Delivered to Roads, by Horace Paul, chief tie inspector, Wabash, St. Louis, Mo.
Address on Does Tapping of Pine Trees Impair Resistance From Decay of Crossties Cut Therefrom, by C. S. Burt, superintendent ties and treatment, I. C., Grenada, Miss.
Address on Anti-Splitting Devices, by S. E. Shoup, assistant engineer, K. C. S., Kansas City, Mo.

Thursday morning, May 7

Address on Tie Practice on the Monon by Anton Anderson, engineer maintenance of way, C. I. & L., Chicago.
Reports of general conditions in tie industry by district directors.
Closing business.
The annual dinner, which will be held on Wednesday evening, will be addressed by J. R. Koontz, vice-president in charge of traffic, St. Louis-San Francisco.

Trains Accelerated in Canada

Concurrent with the adoption of daylight saving time in the principal cities of Canada, and the usual changes in local train schedules to conform therewith, important changes and time reductions in the schedules of principal through trains, effective April 26, were announced last week by the Canadian National and Canadian Pacific.

Between Montreal and Quebec both lines announce that the regular afternoon trains will traverse the distance either way in four hours and thirty minutes.

Between Montreal and Ottawa, two and a half hour service is provided by both railroads in early afternoon and evening trains. The Canadian Pacific will leave Montreal at 12:05 p.m., reaching Ottawa at 2:35 p.m., while the Canadian National early evening train will leave Montreal at 7:10 p.m., and reach Ottawa at 9:40 p.m. From Ottawa the Canadian National afternoon train will leave at 2:30 p.m., and the Canadian Pacific at 3:00 p.m., each making the run in two and a half hours.

Time reductions are made also between Montreal, Toronto and Chicago. Between Montreal and Toronto the Canadian Pacific will operate an afternoon train in each direction in six hours and fifteen minutes, while the Canadian National continues the operation of its

six-hour train in each direction daily. Night trains on both railways at present leaving Toronto and Montreal respectively at 11:00 and 11:59 p.m., will leave at 10:00 p.m., and 11:00 p.m., on each line to conform with daylight saving time. Morning trains on both lines will also be accelerated. The afternoon trains of the Montreal-Toronto-Chicago service leaving Montreal at 3:00 p.m., will reach Chicago next morning at 7:55 in the case of the Canadian National and 8:15 in the case of the Canadian Pacific. East-bound these trains will leave Toronto at 4:00 p.m., and reach Montreal at 10:00 p.m., over the Canadian National and leave at 3:30 p.m., arriving Montreal

Senator Copeland on Railroads

No great city could survive a month without the railroads. Without them we would relapse into pioneer crudity . . . We are one people largely because of what modern transportation has done for the nation. It is a pity that the public continues to believe the railroads are owned by two or three men. Nothing could be further from the truth, but the idea is fostered by certain publicists who appear to delight in sensationalism. On many occasions I have been shocked by the torrents of unreasonable invective poured upon the railroads and railroad operators . . . There is a remarkable parallelism existing between the prosperity of the railroads and the prosperity of the nation. No wonder this is true. With the employees and their families, with the associated industries dependent on the railroads and their families, we are dealing with about one-eighth of all the population of our country . . . The railroads are no leech on the body politic. They pay for the support of government—federal, state and local—the enormous sum of a million a day! What they pay lightens the burdens of all the rest of us. It is unfair and unjust to impose burdens of taxation upon railroads, operated over privately owned and maintained rights of way, unless their competitors are treated the same way . . . To my mind, motor transport is here to stay and should stay. But there must be no misuse of our highways and no unfair competition for what must continue to be our chief means of transportation. With eighty per cent of the business done by the railroads we must not permit economic distress to lessen their efficiency and usefulness . . . We must not overlook the new competition and must deal with it, having minds open to the changed conditions.

—Extracts from an address delivered before the Pennsylvania R. R. Transportation Club, Philadelphia, March 14.

9:45 p.m., over the Canadian Pacific. All times given are Standard Time.

Between Montreal-Toronto, Vancouver, it was announced the Confederation of the Canadian National Railways will resume operation leaving Toronto on her first trip on June 19, while the Trans-Canada of the Canadian Pacific will resume operations between Montreal and Vancouver on June 21 from either end.

Car Men Discuss Supplies

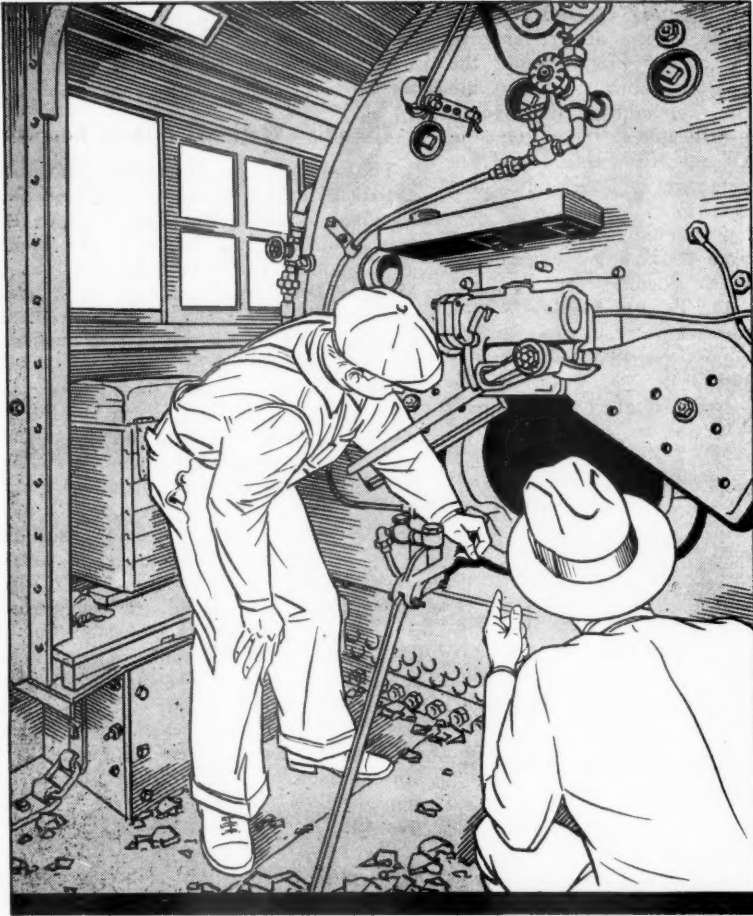
Over 300 car supervisors attended the monthly meeting of the Chicago Car Foremen's Association in Chicago on April 13 to hear an address by J. G. Stuart, general storekeeper of the Chicago, Burlington & Quincy, on the problem and importance of securing co-ordination between the car and store forces in meeting the requirements for material and reducing the maintenance equipment. Mr. Stuart emphasized the fact that both departments have a joint responsibility to work harmoniously.

The two departments must co-ordinate their efforts, he advanced, and the development of a feeling of mutual respect is essential to the purpose. When this respect is lacking, he contended, there can be little or no co-operation. In the interest of conserving material, Mr. Stuart pointed out that car department foremen must realize that a dollar spent for material is as large as a dollar spent for labor, and he developed the thought that a foreman who is willing to help the storekeeper is correspondingly helping himself and the progress of his work. He advocated assigning to stores forces the work of delivering all car material, adding that this procedure would save the time of car forces as well as material. "There are still some car foremen who do not know as much now as the ordinary bricklayer knew 50 years ago," said Mr. Stuart (after explaining how the bricklayer confines his attention to laying brick and depends upon the hodcarrier to provide the material), "but when they do learn, they will not only want material delivery but they will demand it."

Pennsylvania Entertains Employed Boys

Acting in co-operation with the Young Men's Christian Associations of New Jersey, the Pennsylvania, on Saturday, April 11, acted as host to some 370 young men, who had been selected as delegates to the annual State Employed Boys' Conference. The conference, which is sponsored by the New Jersey Y. M. C. A.'s as part of their work with boys who are employed in various trades in communities throughout that state, is held yearly, in connection with some basic industry, with the object of giving the boys an insight into the operations and functions of different types of business. The 1931 conference was the first for which transportation has been the general subject or for which a railroad has acted as host.

The delegates assembled in the railroad's Jersey City (N. J.) station for registration and an address on "Men Who Conquered," by J. F. Patterson, general manager of the Pennsylvania's New York Zone, after which they were taken for a trip around New York harbor on



"THERE'S THE TROUBLE"

—Says the Service Man

AN ENGINE fails to steam properly; or perhaps Arch Brick consumption is high; or it may be one of a score of troubles involving locomotive combustion.

The call goes out for an American Arch Company combustion expert. From his years of observation and experience he quickly gets to the source of the trouble and corrects it.

Roads served by American Arch Company have their Arch Brick supply backed by an experienced organization that for 20 years have concentrated on Arch Brick and locomotive combustion.

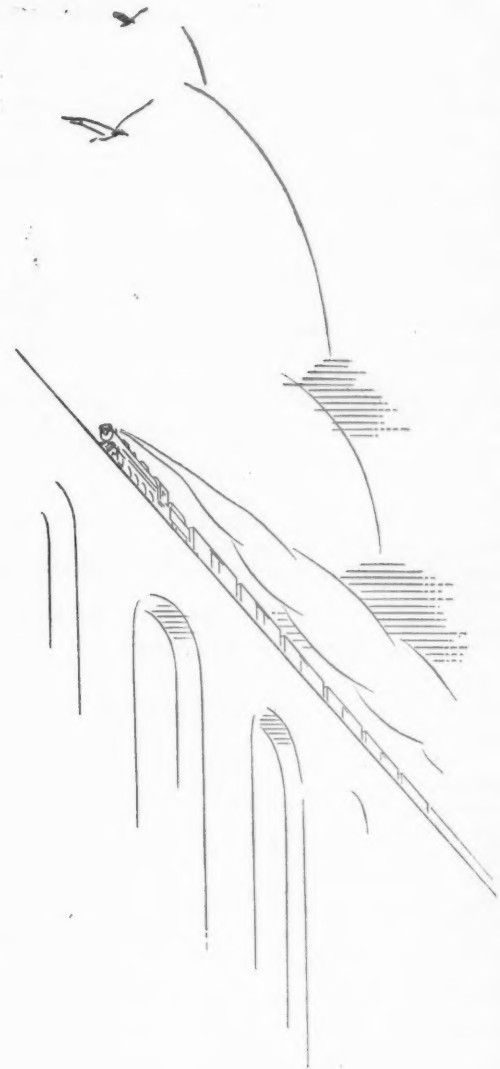
This experience has a definite value.

THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK

**HARBISON-WALKER
REFRACTORIES CO.**
Refractory Specialists



AMERICAN ARCH CO.
INCORPORATED
Locomotive Combustion
Specialists



the railroad ferryboat "Pittsburgh," steamship piers, terminals, warehouses, elevators, railroad float bridges, freight yards, etc., being identified and explained by guides. This was followed by a dinner in the Savarin restaurant at the Jersey City station, at which H. J. Pascoe, general agent of the Pennsylvania, spoke on the subject of "Future Conquerors," and the Pennsylvania's two special sound pictures, "Broadway Limited," and "Coast to Coast in 48 Hours," were shown, as the concluding features of the day's activities.

P. R. R. to Use 152-lb. Rail

A new steel rail, heavier and much stronger than any heretofore in regular use, has been adopted by the Pennsylvania according to an announcement made by Elisha Lee, vice-president of the road, in a paper presented before the American Society of Civil Engineers in Norfolk, Va., on April 15.

The new rail, he said, has been worked out to meet the requirements of sustaining 100,000-lb. axle loads at speeds of 100 miles per hour, as compared with maximum present requirements of 80,000-lb. axle loads and speeds of 80 miles per hour. Its weight is 152 lb. to the yard, and it possesses approximately 75 per cent greater stiffness or strength than the Pennsylvania's present 130-lb. standard section rail for main line use.

Mr. Lee also announced that in connection with the studies for designing the 152-lb. rail, the 130-lb. section had been re-designed in such manner that by the addition of one pound per yard in weight, a gain of 22 per cent in stiffness or strength has been attained, with substantially no increase in cost.

A new form of rail splice bar, providing resiliency at the rail joint, greatly reducing wear of the rail ends, and increasing the quietness and smooth-riding qualities of the track was a further innovation mentioned in Mr. Lee's paper.

Joint Advertising of Excursions

Travel by train for about one cent a mile is the keynote of a joint advertisement being used by several railroads operating in the west as a means of acquainting the public with the low rate excursions being operated on April 24 and 25. On these days round-trip tickets good in coaches and chair cars between practically all stations are being offered at about one cent a mile, while round-trip tickets good in sleeping and parlor cars are being offered for less than two cents a mile. The return limit is May 4. The railroads which are offering these low rates include the Chicago, Burlington & Quincy; the Chicago & North Western; the Chicago, Milwaukee, St. Paul & Pacific; the Chicago & Alton; the Chicago Great Western; the Chicago, Rock Island & Pacific; the Wabash; the Chicago & Eastern Illinois; the Missouri Pacific; the Atchafalaya, Topeka & Santa Fe; the Illinois Central and the Minneapolis, St. Paul & Sault Ste. Marie.

In arranging the joint advertising, which has resulted in a substantial sav-

ing to the participating carriers, several roads participate in the advertisements run in various cities. For example, the advertisements for Chicago carry the names of the Burlington, the North Western, the Milwaukee, the Alton, the Great Western, the Rock Island and the Wabash, while those at Peoria, Ill., also include the Santa Fe.

The establishment of these low rates follows the one-cent-a-mile experiment of the Southern Pacific, the Western Pacific, the Santa Fe and the Los Angeles & Salt Lake which resulted in an increase in business on February 21 and 28. From April 25 to May 1, the Michigan Central will conduct all-expense tours from Chicago to New York, the round-trip fare of \$58.50 including all hotel accommodations, meals and sight-seeing trips at Niagara Falls and New York. On March 29 the Pennsylvania and the Baltimore & Ohio operated all-expense student tours from Chicago to Washington on a rate of \$30. In co-operation with these tours, railroads operating from points in Wisconsin to Chicago placed low rates in effect for those who expected to join the eastern tours at Chicago.

Heavy Rains Disrupt Train Service in Columbia River Valley

Train service on parts of the Oregon-Washington Railroad & Navigation, the Southern Pacific and the Spokane, Portland & Seattle lines and on several short line railroads in the Columbia River valley was interrupted for periods varying from one to five days following a heavy rainfall over Oregon and Washington on March 31 which filled rivers to flood level and covered tracks with earth slides.

On the Oregon-Washington line on the south side of the Columbia river between Portland and Hood River Union Pacific trains were delayed for 24 hours until the S. P. & S., which was washed out at Skamania, Wash., was repaired when they were diverted over the S. P. & S. between Portland and Wishram. Service on the Oregon-Washington was interrupted between Pendleton, Oregon, and La Grande for about four days, with service resumed on the Umatilla-Pendleton section a day earlier. Passengers were carried between Umatilla and Pendleton by motor coaches of the Union Pacific Stages.

The only through route of the Southern Pacific to suffer by the rainfall was the Eugene-Klamath Falls-Black Butte line where service was interrupted for about 12 hours on April 1 by an earth slide near Wicopee, Oregon. Branch lines of the Southern Pacific on which traffic was delayed for varying periods either because of slides or the washing out of trestles included the Hillsboro-Tillamook, the Canby-Molalla and the Albany-Detroit lines, all in Oregon. Traffic was delayed on the Portland-Astoria branch of the S. P. & S. and passengers were carried by motor coaches of the Spokane, Portland & Seattle Transportation Company.

Slides covered parts of the Camas Prairie line between Riparia, Wash., and Lewiston and a trestle was washed out between Arrow, Wash., and Agatha.

Traffic on the Mount Hood Railroad between Hood River, Oregon, and Parkdale, was delayed by the washing out of a trestle.

Canadian National Annual Report

The report of Sir Henry W. Thornton, chairman and president of the Canadian National, covering the operations of the system in 1930, was tabled in the House of Commons this week by Hon. R. J. Manion, Minister of Railways and Canals, and shows a decrease in gross revenue of \$46,223,052 with a decrease in expenses of \$25,915,964. Net revenue before charges for the system during the year 1930 was \$26,510,937, a decrease of \$20,307,087 as compared with 1929.

Of the total operating revenue of \$221,770,440.90, freight traffic produced \$163,859,421; passenger traffic \$27,536,653; express, \$11,488,176; mail and miscellaneous \$18,886,192. Operating expenses were \$195,259,507, a reduction of \$25,915,964. On maintenance of way and structures there was expended a total of \$39,777,566; on maintenance of equipment, \$43,091,329 and in wages, during the year the system paid out \$159,675,111 which was more than 54 percent of the operating ratio as divided between labor, fuel and other expenses. The average number of employees on the system during the year was 101,105.

The report includes the Central Vermont but excludes the Maritime Lines which were dealt with in a separate report.

Gross revenues from freight traffic were lower by approximately \$36,000,000 or 18 per cent, attributable to general economic conditions and to motor truck competition. Passenger earnings decreased by \$5,588,508 or 16.9 per cent. This decrease, the report states, was due, partly to general conditions, partly to increased automobile competition, and partly to a decrease in European immigration traffic.

Referring to the Grand Trunk Western lines of the system, the report states that decrease in revenue on these lines is largely attributed to the depression which prevailed in the automotive and related industries.

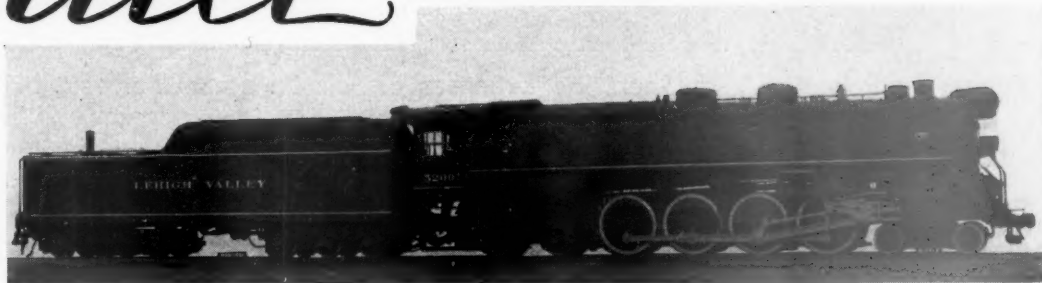
Dealing with operating expenses the report states that "every effort, consistent with proper maintenance, safe operation and the responsibilities of adequate service, was made to reduce expenses. These reductions aggregate about \$26,000,000 or 11 per cent." Expenditures on maintenance of way and structures were reduced by \$8,658,551 or 17.88 per cent.

The reduction in transportation expenditures amounted to \$11,928,077 or 11 per cent. The transportation ratio increased from 40.31 per cent to 43.33 per cent. The average loading per car also was increased from 20.96 tons to 21.53 tons. The average haul of revenue freight increased from 279.36 to 300.66 miles.

The net earnings of the railway, after payment of operating expenses were \$26,510,937, a decrease of \$20,307,087. Operating expenses amounted to 88.05 per cent of the gross earnings as against 82.53 per cent in 1929. Taxes amounted to \$5,694,012 as compared with \$5,332,070 in the previous year.

Continued on Next Left Hand Page

Alco Built



BUILT FOR THE LEHIGH VALLEY

Weight on Drivers, 268,000 pounds; Weight of Engines, 422,000 pounds; Cylinders, 26 x 32 inches; Diameter of Drivers, 70 inches; Boiler Pressure, 255 pounds; Maximum Tractive Power with Booster, 85,060 pounds.

FROM 1925 to 1929 only slightly more than 2500 new locomotives were purchased for freight service by Class I railroads, amounting to not more than 9 percent of the freight locomotives in service at the end of that period.

No locomotive built prior to 1925 possesses all the capacity and economy-increasing factors which have been built into the locomotives acquired by the railroads since that time. And yet, in spite of this, replacement since 1925 has gone on only at a rate of less than 2 percent.

A more liberal retirement and replacement program will reduce operating expenses now. It would also assure greater net earnings when gross revenue increases.

Obsolescence exacts a high tribute.

American Locomotive Company
30 Church Street New York N.Y.

The year's operations produced \$23-958,305 applicable towards paying the interest due the public on securities held, and other interest charges. The interest due the public on funded debt was \$50,921,422 and interest on unfunded debt amounted to \$2,257,622, so that the deficit after meeting all charges to the public was \$29,219,739. The accrued interest on government advances was \$32,067,462, producing a total deficit of \$61,287,201.

Revenues of Grand Trunk Western lines were affected more seriously than those of other lines during the year, as evidenced by decreased earnings of every

kind, in view of which the operating ratio of 84.01 was about as favorable as could be expected, the report states.

On the Central Vermont Railway, revenues for the eleven months ending December 30, 1930, were sufficient to pay all fixed charges including interest payments of \$802,083 on the mortgage bonds and gold bonds of the Vermont Company owned by the Canadian National Railways, and leave a surplus of \$150,279.

The 1930 operation of the Northern Alberta Railway Company, owned jointly with the Canadian Pacific, resulted in a loss of \$1,072,904, half of which amount

was absorbed by the Canadian National. Of the financing done by the Canadian National during 1930 amounting to \$83,750,000, refunding amounted to \$46,197,207. There have been large additions to the assets of the system. Investment in road and equipment has increased from \$2,038,398,432 in 1929 to \$2,111,519,813 in 1930. The mileage of the System was 23,767 and during 1930 196.27 miles of new lines were placed in operation in Manitoba and 155.09 miles of new lines in Saskatchewan.

The statement on operations of Eastern lines covering the mileage east of Levis and Diamond Junction shows gross

Operating Revenues and Operating Expenses of Class I Steam Railways in the United States

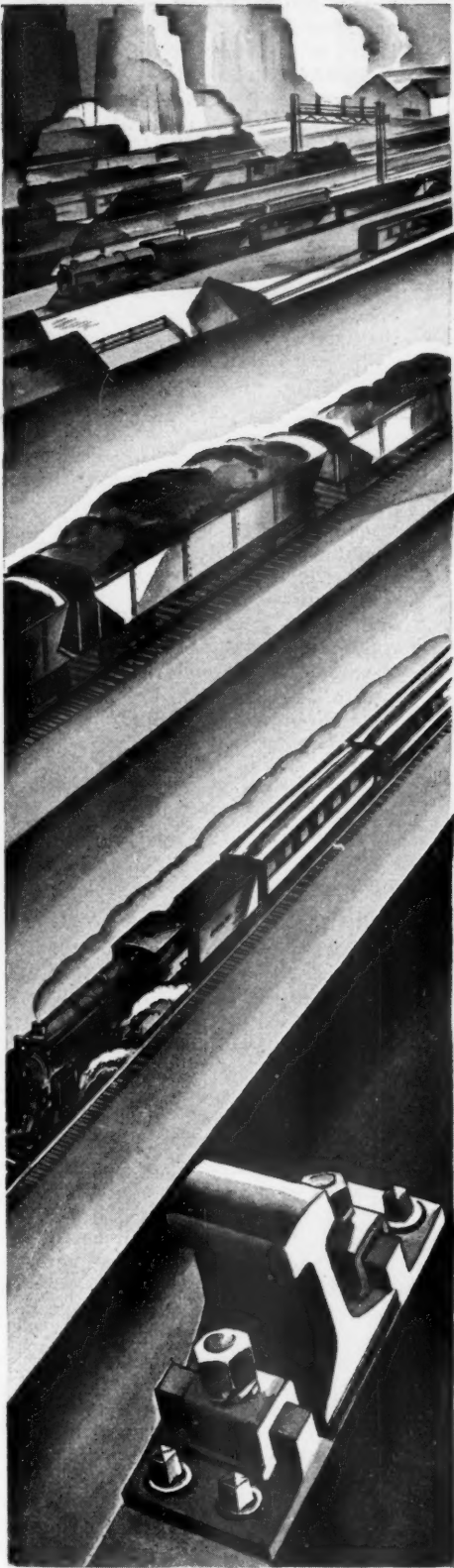
Compiled from the Monthly Reports of Revenues and Expenses for 171 Steam Railways, Including 16 Switching and Terminal Companies.

| Item | United States | | Eastern District | | Southern District | | Western District | |
|---|---------------|---------------|------------------|---------------|-------------------|---------------|------------------|---------------|
| | 1931 | 1930 | 1931 | 1930 | 1931 | 1930 | 1931 | 1930 |
| Average number of miles operated | 242,743.81 | 242,806.56 | 60,219.60 | 60,324.70 | 46,090.49 | 46,152.27 | 136,433.72 | 136,329.59 |
| Revenues: | | | | | | | | |
| Freight | \$257,521,280 | \$327,228,716 | \$112,533,614 | \$143,236,786 | \$49,853,520 | \$63,780,437 | \$95,134,146 | \$120,211,493 |
| Passenger | 46,454,724 | 61,284,400 | 25,633,224 | 31,711,382 | 7,094,743 | 10,337,235 | 13,726,757 | 19,235,783 |
| Mail | 8,361,103 | 8,819,529 | 3,155,154 | 3,290,242 | 1,429,055 | 1,501,493 | 3,776,894 | 4,027,794 |
| Express | 5,557,819 | 7,958,820 | 2,110,841 | 3,423,157 | 1,122,012 | 1,322,293 | 2,324,966 | 3,213,370 |
| All other transportation | 11,138,110 | 13,680,203 | 6,374,692 | 7,864,019 | 922,426 | 1,135,909 | 3,840,992 | 4,680,275 |
| Incidental | 6,938,156 | 8,470,613 | 3,770,751 | 4,300,850 | 1,048,227 | 1,406,705 | 2,119,178 | 2,763,058 |
| Joint facility—Cr. | 899,316 | 1,022,061 | 299,697 | 310,301 | 156,339 | 182,212 | 443,280 | 529,548 |
| Joint facility—Dr. | 238,198 | 321,796 | 76,483 | 75,708 | 24,214 | 32,859 | 137,501 | 213,229 |
| Railway operating revenues | 336,632,310 | 428,142,546 | 153,801,490 | 194,061,029 | 61,602,108 | 79,633,425 | 121,228,712 | 154,448,092 |
| Expenses: | | | | | | | | |
| Maintenance of way and structures | 41,427,659 | 53,273,222 | 18,062,007 | 22,421,803 | 8,896,777 | 11,354,360 | 14,468,875 | 19,497,059 |
| Maintenance of equipment | 71,922,680 | 89,322,787 | 33,452,454 | 41,360,604 | 12,999,628 | 16,291,435 | 25,470,598 | 31,670,748 |
| Traffic | 9,805,020 | 10,742,675 | 3,802,168 | 4,132,502 | 1,857,559 | 2,060,989 | 4,145,293 | 4,549,184 |
| Transportation | 130,466,446 | 157,660,690 | 62,350,182 | 75,024,925 | 21,701,413 | 25,808,453 | 46,414,851 | 56,827,312 |
| Miscellaneous operations | 3,547,570 | 4,433,079 | 1,707,435 | 2,081,412 | 514,746 | 665,855 | 1,325,389 | 1,685,812 |
| General | 15,449,061 | 16,132,233 | 6,782,964 | 7,081,115 | 2,640,437 | 2,674,557 | 6,025,660 | 6,376,561 |
| Transportation for investment—Cr. | 502,492 | 851,524 | 107,284 | 121,442 | 33,990 | 138,013 | 361,218 | 592,069 |
| Railway operating expenses | 272,115,944 | 330,713,162 | 126,049,926 | 151,980,110 | 48,576,570 | 58,717,636 | 97,489,448 | 120,014,607 |
| Net revenue from railway operations | 64,516,366 | 97,429,384 | 27,751,564 | 42,080,110 | 13,025,538 | 20,915,789 | 23,739,264 | 34,433,485 |
| Railway tax accruals | 26,953,845 | 28,679,751 | 10,374,408 | 10,992,811 | 5,398,086 | 5,946,981 | 11,181,351 | 11,739,959 |
| Uncollectible ry. revenues | 77,718 | 90,351 | 44,097 | 40,838 | 8,340 | 11,015 | 25,281 | 38,498 |
| Railway operating income | 37,484,803 | 68,659,282 | 17,333,059 | 31,046,461 | 7,619,112 | 14,957,793 | 12,532,632 | 22,655,028 |
| Equipment rents—Dr. balance | 7,866,791 | 7,191,008 | 4,116,596 | 3,818,457 | 527,863 | 95,792 | 3,222,332 | 3,276,759 |
| Joint facility rent—Dr. balance | 2,353,543 | 1,887,380 | 1,243,522 | 876,383 | 283,543 | 202,028 | 826,478 | 808,969 |
| Net railway operating income | 27,264,469 | 59,580,894 | 11,972,941 | 26,351,621 | 6,807,706 | 14,659,973 | 8,483,822 | 18,569,300 |
| Ratio of expenses to revenues (per cent) | 80.83 | 77.24 | 81.96 | 78.32 | 78.86 | 73.73 | 80.42 | 77.71 |
| FOR TWO MONTHS ENDED WITH FEBRUARY, 1931 AND 1930 | | | | | | | | |
| Average number of miles operated | 242,741.23 | 242,806.02 | 60,221.79 | 60,328.14 | 46,098.76 | 46,145.76 | 136,420.68 | 136,332.12 |
| Revenues: | | | | | | | | |
| Freight | \$534,535,233 | \$665,407,363 | \$231,432,985 | \$290,699,429 | \$104,503,099 | \$131,009,941 | \$198,599,149 | \$243,697,993 |
| Passenger | 99,803,379 | 131,766,015 | 55,544,126 | 69,255,810 | 14,709,000 | 21,319,016 | 29,550,253 | 41,191,189 |
| Mail | 17,367,880 | 18,270,380 | 6,583,900 | 6,914,388 | 2,976,223 | 3,107,664 | 7,807,757 | 8,248,328 |
| Express | 11,541,712 | 16,251,312 | 4,371,586 | 7,244,538 | 2,141,209 | 2,656,072 | 5,028,917 | 6,350,702 |
| All other transportation | 22,997,735 | 28,227,888 | 13,211,369 | 16,284,095 | 1,811,903 | 2,269,443 | 7,974,463 | 9,674,350 |
| Incidental | 14,916,838 | 18,148,244 | 8,105,971 | 9,359,975 | 2,230,206 | 2,863,940 | 4,580,661 | 5,924,329 |
| Joint facility—Cr. | 1,888,546 | 2,144,787 | 618,469 | 672,905 | 312,512 | 365,147 | 957,565 | 1,106,735 |
| Joint facility—Dr. | 519,258 | 614,658 | 152,055 | 153,783 | 49,803 | 67,777 | 317,400 | 393,098 |
| Railway operating revenues | 702,532,065 | 879,601,331 | 319,716,351 | 400,277,357 | 128,634,349 | 163,523,446 | 254,181,365 | 315,800,528 |
| Expenses: | | | | | | | | |
| Maintenance of way and structures | 85,166,539 | 108,190,027 | 37,376,898 | 46,352,083 | 18,038,784 | 22,810,781 | 29,750,857 | 39,027,163 |
| Maintenance of equipment | 149,149,723 | 185,202,901 | 69,403,299 | 86,026,016 | 26,895,167 | 33,552,548 | 52,851,257 | 65,624,337 |
| Traffic | 19,963,918 | 22,069,683 | 7,597,653 | 8,459,944 | 3,913,827 | 4,271,331 | 8,452,438 | 9,338,408 |
| Transportation | 273,883,037 | 331,233,187 | 129,920,009 | 155,915,002 | 45,613,269 | 54,000,689 | 98,349,759 | 121,317,496 |
| Miscellaneous operations | 7,513,713 | 9,352,484 | 3,637,614 | 4,441,110 | 1,051,778 | 1,361,354 | 2,824,321 | 3,550,020 |
| General | 31,527,512 | 33,083,815 | 13,775,306 | 14,561,142 | 5,459,404 | 5,523,410 | 12,292,802 | 12,999,263 |
| Transportation for investment—Cr. | 1,006,551 | 1,754,787 | 188,736 | 257,338 | 81,186 | 227,516 | 736,629 | 1,269,933 |
| Railway operating expenses | 566,197,891 | 687,377,310 | 261,522,043 | 315,497,959 | 100,891,043 | 121,292,597 | 203,784,805 | 250,586,754 |
| Net revenue from railway operations | 136,334,174 | 192,224,021 | 58,194,308 | 84,779,398 | 27,743,306 | 42,230,849 | 50,396,560 | 65,213,774 |
| Railway tax accruals | 54,242,941 | 58,106,540 | 21,100,082 | 22,599,298 | 10,833,930 | 11,959,292 | 22,308,929 | 23,547,950 |
| Uncollectible ry. revenues | 146,591 | 182,046 | 73,434 | 88,396 | 18,916 | 25,293 | 54,241 | 68,357 |
| Railway operating income | 81,944,642 | 133,935,435 | 37,020,792 | 62,091,704 | 16,890,460 | 30,246,264 | 28,033,390 | 41,597,467 |
| Equipment rents—Dr. balance | 15,966,999 | 14,660,607 | 8,387,644 | 7,998,295 | 992,129 | 8,243 | 6,587,226 | 6,670,555 |
| Joint facility rent—Dr. balance | 4,864,058 | 3,920,783 | 2,682,804 | 1,842,818 | 527,035 | 411,214 | 1,654,219 | 1,666,751 |
| Net railway operating income | 61,113,585 | 115,354,045 | 25,950,344 | 52,250,591 | 15,371,296 | 29,843,293 | 19,791,945 | 33,260,161 |
| Ratio of expenses to revenues (per cent) | 80.59 | 78.15 | 81.80 | 78.82 | 78.43 | 74.17 | 80.17 | 79.35 |

d Deficit or other reverse items.

Compiled by Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

Continued on Next Left Hand Page



MORE TRAINS

HEAVIER TRAINS

FASTER TRAINS

demand

GEO

SMOOTH and practically noiseless track, control of rail movement, reduction in rail wave motion, longer life of rails and ties, radically reduced maintenance costs, greater safety . . . these are the important advantages of **GEO**—the modern track construction which is attracting the favorable attention of progressive railroad officials in search of equipment adequate to the demands of present-day traffic.

GEO is not a new, untried device. Many thousands of miles of **GEO** track have been laid in Europe where it has been adopted as standard construction in several countries. In Germany alone, more than 7900 miles of **GEO** track have been laid within the last five years. Here in America, tests on leading railroad systems are already demonstrating its outstanding merit.

Descriptive literature will be sent at your request, and Carnegie engineers are at your service at all times.

CARNEGIE STEEL COMPANY - PITTSBURGH

Subsidiary of United  States Steel Corporation

128

GEO



TRACK CONSTRUCTION

revenues of \$28,598,553 in 1930, a decrease of \$2,019,453. Operating expenses were \$33,028,515 in 1930 a reduction of \$786,866 from the 1929 figures. Freight shipments were good during the first seven months of the year in this territory and showed increases over the corresponding months of 1929. Commencing in August there was a sharp decline in traffic, the net result for the twelve months being a decrease of nearly 15 per cent in revenue ton miles. The operating deficit for 1930 shows an increase of \$1,232,587 over the 1929 deficit.

Dismissal of Warehousemen's Complaint Against Barge Line Recommended

Examiner William A. Maidens of the Interstate Commerce Commission has submitted a proposed report recommending that the commission dismiss for lack of jurisdiction a complaint filed by the American Warehousemen's Association which had charged the Inland Waterways Corporation with unfair discrimination in allowing storage in transit on sugar, canned goods, coffee and other commodities, in its warehouses, on shipments moving by the federal barge line, at rates so low in relation to cost as to amount virtually to free service, while refusing to accord like privileges on shipments transported by it when stored in warehouses of complainant's members. The complaint was directed mainly against the stopping-in-transit privileges on sugar moving over the barge line through the ports of Memphis, Birmingham, and Holt, Ala., at charges lower than those generally observed by complainant's members at the same points.

"Upon all the facts of record," Examiner Maidens says, "the commission should find that it is not within its powers to determine the issues here presented. The evidence presented does not convincingly establish the inadequacy of the storage charges assailed nor does the record show that any shipper using the barge line service has been refused the services complained of. The complaining warehousemen are not shippers, and no shipper to whom the barge line facilities are available is here complaining against the storage-in-transit charges. The storage and handling service performed by defendant at its terminals is in the nature of that performed by carriers when they grant free dockage to steamships as a solicitation for freight. The fact that the charges assailed are published in a tariff on file with this commission cannot confer jurisdiction upon the said commission where it has not been granted by Congress."

According to the report the barge line had expressed a willingness to extend the application of the sugar transit privileges to independent warehouses, if any such existed on the river banks at Memphis, Birmingham or Holt, but it said that "since the barge line could not reasonably be expected to absorb the switching or drayage charges necessary to the placing of sugar at inland warehouses, its contention that no discrimination in this respect exists has merit."

Foreign

First Trans-African Rail Line Completed

With the completion, on March 10, of an extension of the Benguela Railway from Luao, on the eastern frontier of Angola (Portuguese West Africa), to Tenke, in the Katanga province of the Belgian Congo, the southern part of the African continent has been spanned for the first time by an all-rail line, running from the Atlantic to the Indian Ocean, traversing Portuguese, Belgian and British territory, and representing more than 28 years of construction work.

The new route was actually begun in 1902, says the Times (London), when a 99-year concession for building the Benguela Railway was granted to Sir Robert Williams. A company to work this concession was formed with capital of £3,000,000 (about \$15,000,000), of which one-tenth was Portuguese and the rest British, and construction was started from the road's western terminus at Benguela, on Lobito Bay, in March, 1903. After long delays caused by the war, the line, which is of African (3 ft. 6 in.) gage, was completed to the Angola-Congo frontier in 1928, and was formally opened by the Portuguese Minister of Colonies in June, 1929, as described in the *Railway Age* of July 20, 1929, page 221.

From the frontier the Belgians have now finished the intervening 335 miles to Tenke, where connection is made with the Katanga Railways. These, in turn, connect with the Rhodesian system (British), and with Capetown, Durban, Delagoa Bay, Beira and other ports in the Union of South Africa and Portuguese East Africa.

The principal object in building the new line from the west coast of Africa was to provide a shorter outlet than any now available for the copper and other minerals which are known to exist in enormous quantities in Katanga and Northern Rhodesia.

South Australian Railways

With the addition of the 1929-30 net loss after interest charges of \$8,747,630, the cumulative deficit of the government-owned South Australian Railways reached a total of \$154,385,287 at the close of their past fiscal year ending June 30, 1930. Not since 1924-25 have these railways earned interest charges and in only one year since that time—the year ending June 30, 1928—have they reported any net revenues from operations. In addition to 1924-25 interest charges have been earned in two other years of the past decade, 1922-23 and 1923-24.

Financial results for the past five years are summarized in the following table:

| | Operating Loss | Interest Charges | Deficit |
|---------|----------------|------------------|--------------|
| 1925-26 | \$13,837,058 | \$5,820,176 | \$19,657,234 |
| 1926-27 | 8,511,864 | 6,489,348 | 15,001,212 |
| 1927-28 | 1,323,783* | 6,193,111 | 4,869,328 |
| 1928-29 | 163,369 | 6,656,350 | 6,819,719 |
| 1929-30 | 1,934,242 | 6,813,388 | 8,747,630 |

* Operating profit.

The above mentioned cumulative deficit of \$154,385,287 which the report calls "the total interest on capital debited" is

nearly \$20,000,000 in excess of the investment in road and equipment. The latter at the close of the year stood at \$135,882,472. The increase of \$2,164,379 as compared with the previous year is attributable in the main to expenditures of \$1,969,141 for rolling stock.

Gross revenues during 1929-30 were \$16,064,421, a decrease of \$1,558,818 from the 1928-29 figure of \$17,623,239. At the same time operating expenses rose from \$17,786,608 in 1928-29 to \$17,998,663 during the past year and thus the 1929-30 operating loss was \$1,770,873 greater than that of the previous year.

The decline in revenues, both passenger and freight, is attributed to the general business depression and highway competition. "The working expenses," the report says "were reduced wherever possible, but these cannot be reduced proportionately to the decline in revenue, inasmuch as a corresponding reduction is quite impossible during a period of depressed trading, as has been experienced during the year, as station staffs, train services, and railway facilities generally have had to be continued, notwithstanding the all-round falling off in patronage."

Operations of rail motor cars are being extended in an endeavor to reduce expenses on light traffic lines. During 1929-30 a total of 2,368,082 passengers traveled 35,462,490 passenger miles in rail motor cars as compared with 1,900,700 passengers traveling 29,811,676 passenger miles in the previous year.

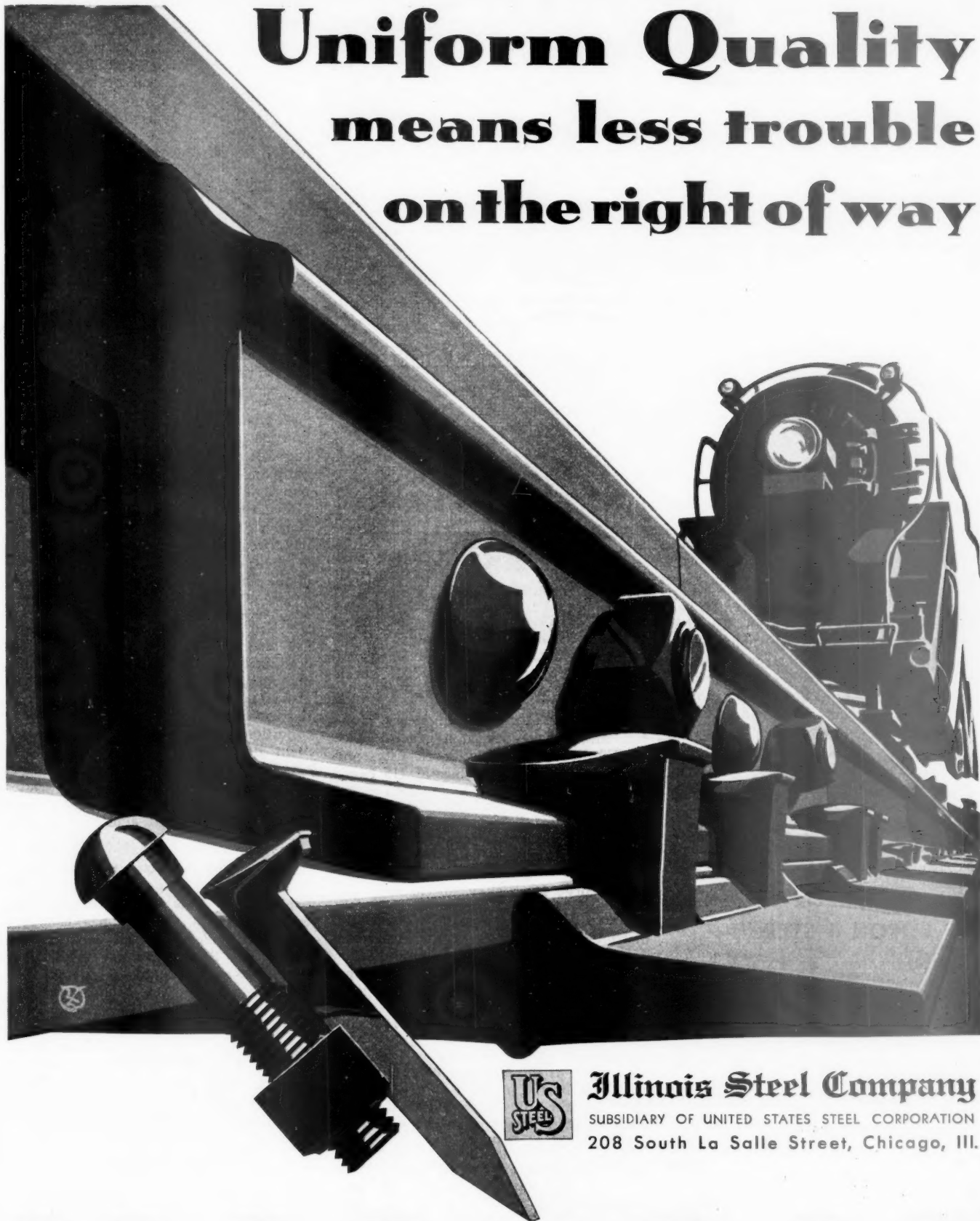
British Railways Order Steel Ties

Important contracts listed by the Times (London) as having been recently placed with British firms by British railways, in connection with 1931 maintenance and improvement programs, include a Southern order for 32,000 tons of rail and 5,000 tons of steel ties and a Great Western order for 62,000 ties. In both cases, the orders for steel sleepers are repetitions of previous contracts. The Southern installed a number two years ago, with satisfactory results; while the G. W. R. already has over 136,000 in use at more than 100 points on its system, and when those now on order have been put in service, in half-mile and mile sections, it will have a total of 94 miles of line laid with steel sleepers. The Great Western's total steel requirements for the year, in connection with maintenance and improvement projects estimated to cost more than \$41,000,000, are expected to total about 90,000 tons.

The largest order for mercury arc rectifiers ever placed in Great Britain, including 17 of 1,500 kw. each and five of 2,000 kw. each, has been given to the British Thomson-Houston Company, Ltd., by the London Electric Railway. These rectifiers are to be installed in nine substations, which will also include over 100 B. T. H. air blast transformers, 120 high-speed circuit breakers and 60 heavy-duty oil circuit breakers. The Thomson-Houston Company is also working on two 1,200 kw. mercury arc rectifiers for the London, Midland & Scottish Barking-Upminster electrification, and will shortly complete a rectifier for the newly-electrified Manchester-Altrincham Railway.

Continued on Next Left Hand Page

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on the right of way**



Illinois Steel Company

SUBSIDIARY OF UNITED STATES STEEL CORPORATION
208 South La Salle Street, Chicago, Ill.

**ILLINOIS
TRACK MATERIALS**

Equipment and Supplies

LOCOMOTIVES

THE TOLEDO, PEORIA & WESTERN is inquiring for four locomotive tenders.

FREIGHT CARS

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC is inquiring for four air-dump cars of 20-yd. capacity.

THE DELAWARE & HUDSON is building 100 box cars and rebuilding about 350 other cars in its own shops.

THE MORTON SAND & GRAVEL COMPANY, Chicago, is inquiring for five to ten gondola cars of 50 tons' capacity.

THE AMTORG TRADING CORPORATION has ordered 60 air-dump cars of 30-yd. capacity from the Magor Car Corporation.

THE GREAT NORTHERN has ordered 500 hopper cars of 50 tons' capacity from the Standard Steel Car Corporation. Inquiry for 250 cars was reported in the *Railway Age* of March 28.

THE GENERAL CHEMICAL COMPANY has ordered from the American Car & Foundry Co., 15 new steel rubber lined tanks, I.C.C. 103B of 4,000 gal. capacity to be installed on existing underframes and trucks. These tank cars are to be used for carrying muriatic acid.

PASSENGER CARS

THE KANSAS CITY SOUTHERN has ordered four baggage and mail cars from the Pullman Car & Manufacturing Corporation. Inquiry for this equipment was reported in the *Railway Age* of February 21.

IRON & STEEL

THE MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE is inquiring for 650 tons of structural steel for an ore dock at Marquette, Mich.

THE CHESAPEAKE & OHIO has ordered 847 tons of structural steel for a bridge at Walbridge, Ohio, from the McClintic-Marshall Company.

THE GULF, COLORADO & SANTA FE has ordered 1,000 tons of structural steel for a passenger station at Galveston, Tex., from the Mosher Steel & Machinery Company. This company is also inquiring for 1,100 tons of structural steel for an office building at Galveston.

SIGNALING

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC has ordered from the Union Switch & Signal Company materials for automatic block signaling from Lawson,

Mo., to Birmingham, 10 miles single track and 13 miles double track. Searchlight signals will be used.

THE LOUISVILLE & NASHVILLE has ordered from the Union Switch & Signal Company material for installing remote control at Atkinson, Ky., to operate the switches and signals at Arklow, Ky., one mile distant. The control panel will be set up in the yard office at Atkinson.

MOTOR COACHES

THE NEW ENGLAND TRANSPORTATION COMPANY has received seven Type 250, 33-passenger observation Yellow coaches from the General Motors Truck Company, Pontiac, Mich.

MISCELLANEOUS

THE LOS ANGELES & SALT LAKE plans the installation of a 1,500-kw. turbine generator in its power plant at Las Vegas, Nev., which will cost about \$78,000.

Supply Trade

The Pressed Steel Car Company will move its New York office about April 24, from 55 Broad street to 80 Broad street.

The Pittsburgh-Des Moines Steel Company, Pittsburgh, Pa., has moved its New York office from 50 Church street to 270 Broadway.

Jackson & Moreland, engineers, Boston, Mass., have opened a general office at 270 Broadway, New York City, and have closed their field office at 115 Ferry street, Hoboken, N. J.

Edwin T. Hall, representative of the Sullivan Machinery Company, with headquarters at Boston, Mass., has been promoted to manager of this office to succeed George H. Richey, deceased.

Harry W. Petty, formerly Cleveland district sales manager of the American Steel Foundries, has been appointed representative of the Union Steel Castings Company, with headquarters at Pittsburgh, Pa.

J. B. Bartholomew, formerly western manager of sales engineers in the Chicago office of the Bethlehem Steel Company, has been appointed contract manager for the McClintic-Marshall Corporation, with headquarters at Chicago.

M. C. Suerken has been promoted to sales representative of the New York office of the Reliance Electric & Engineering Company, Cleveland, Ohio, and Robert M. Fitzgerald has been promoted to sales representative of its Philadelphia, Pa., office.

F. H. Hopkins & Company, Limited, with offices at Montreal and Toronto have been appointed agents for eastern Canada of The Ohio Locomotive Crane Company, Bucyrus, Ohio, to handle the company's line of locomotive cranes, pile

drivers, excavators and tractor dump wagons.

The United States Steel Corporation has arranged a long term lease for office space for several of its subsidiary companies in the Empire State building, Thirty-fourth street and Fifth avenue, New York City, as follows: American Steel & Wire Company, Lorain Steel Company, Oil Well Supply Company and Wilson-Snyder Manufacturing Company.

The Link-Belt Company, Chicago, in addition to re-electing its former board of nine directors, has added three new directors under a recent amendment of its charter. The new directors are Arthur L. Livermore, attorney of New York City; George P. Torrence, vice-president of the company, and Richard W. Yerkes, secretary and treasurer of the company.

William A. Callison, Jr., has been appointed a sales representative at Chicago, of the American Locomotive Company and the Railway Steel-Spring Company. After graduating from Purdue University, Mr. Callison spent a short time with the International Nickel Company, leaving there to spend two years at the Schenectady and Dunkirk works of the American Locomotive Company.

P. B. Bird, chairman of the board of the Bird-Archer Company, New York, has also been elected president to succeed L. F. Wilson, president and general manager, retired. After a brief leave of absence, Mr. Wilson will assume duties associated with the locomotive water conditioner and other mechanical equipment developed in the service of the company. Arrangements under which he will operate will be announced later. J. E. O'Brien, vice-president, has been elected vice-president and general manager, with headquarters in Chicago.

C. F. Wiley, assistant manager of the electric wire and rope department of the American Steel & Wire Company, with headquarters at Chicago, has been promoted to manager of this department to succeed C. S. Knight, deceased. John May, assistant manager of sales of electric wire and rope, has been promoted to assistant general manager of sales in charge of electric wire, rope and specialties, and has been succeeded by A. H. Mowry, assistant manager of sales of electric wire and rope. H. D. Sharp, manager of sales of electric wire and rope at Boston, Mass., has been transferred to Worcester.

OBITUARY

C. S. Knight, Jr., manager of the electrical and wire rope sales department of the American Steel & Wire Company, Chicago, died recently.

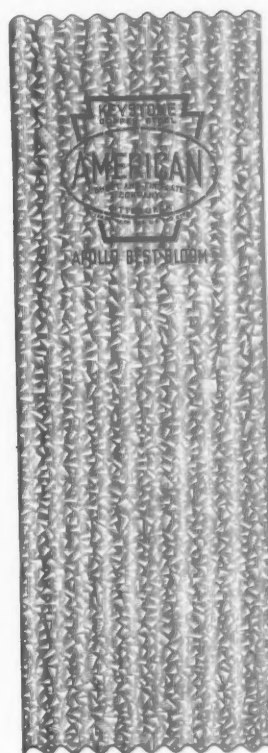
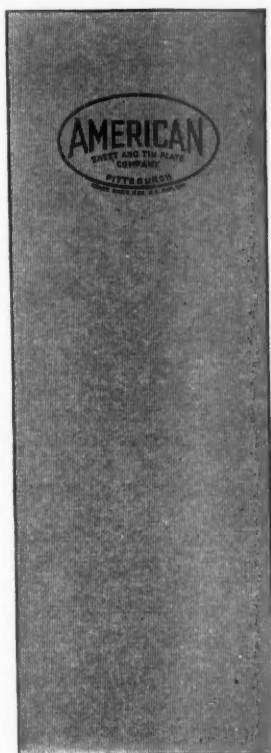
Elmer A. Laughlin, inventor of the Durable draft gear and other railway appliances, died in a fire on his farm near Oregon, Ill., on April 1.

George E. VanHagen, Jr., assistant to the president of the Standard Forg-

Continued on Next Left Hand Page

AMERICAN

STEEL SHEETS for EVERY PURPOSE



STEEL SHEETS serve an ever growing and important place in the equipment and maintenance of the railroads of this country. For this reason, AMERICAN products are built upon these basic and essential elements: *Research*—which is constantly functioning through the laboratories; *Correct Materials*—which must pass stringent experimental tests; *Exacting Manufacture*—that is closely controlled and is combined with skilled craftsmanship. It is therefore to your interest to specify high grade

AMERICAN Blue Annealed, Black and Galvanized Sheets; Full Finished Sheets, Locomotive Jacket Sheets, Keystone Rust-resisting Copper Steel Sheets, Galvannealed Sheets, Formed Roofing and Siding Products, Tin and Terne Plates, Special Sheets and Stainless and Heat Resisting Steel Sheets.



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GENERAL OFFICES: Frick Building, PITTSBURGH, PA.

SUBSIDIARY OF UNITED STATES STEEL CORPORATION



AMERICAN BRIDGE COMPANY
AMERICAN SHEET AND TIN PLATE COMPANY
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CARNegie STEEL COMPANY
Pacific Coast Distributors—Columbia Steel Company, Ross Building, San Francisco, Calif.

PRINCIPAL SUBSIDIARY MANUFACTURING COMPANIES:
COLUMBIA STEEL COMPANY
CYCLONE FENCE COMPANY
FEDERAL SHIPB'LDG. & DRY DOCK CO.

ILLINOIS STEEL COMPANY
MINNESOTA STEEL COMPANY
NATIONAL TUBE COMPANY

OIL WELL SUPPLY COMPANY
THE LOBAIN STEEL COMPANY
TENNESSEE COAL, IRON & RAILROAD CO.
UNIVERSAL ATLAS CEMENT COMPANY

Sole U.S. Distributors—United States Steel Products Company, 31 Church Street, New York, N. Y.

ings Company, Chicago, died at Miami, Fla., on April 11, following an operation for appendicitis.

Joseph B. Terbell, chairman of the board of directors of the American Brake Shoe & Foundry Company and for the past 30 years connected with that company, died on April 15 at his home in New York City, at the age of 68.

George H. Richey, manager of the Boston, Mass., office of the Sullivan Machinery Company, died on April 1. Mr. Richey had been associated with the Sullivan Machinery Company since 1912, and was manager of its New England sales office in Boston from 1919 until his death.

Construction

ATCHISON, TOPEKA & SANTA FE.—This company plans the construction of a 4,000,000-bu. addition to its grain elevator at Kansas City, Kan., which now has a capacity of 6,000,000 bu.

CHESAPEAKE & OHIO.—A contract amounting to approximately \$323,000 has been awarded to the Walsh Construction Company, Indianapolis, Ind., for the construction of an overhead highway bridge at Cummings road, Walbridge, Ohio.

CHICAGO, ROCK ISLAND & PACIFIC.—A contract has been awarded to the James Stewart Corporation, Chicago, for the construction of a 1,000,000 bu. reinforced concrete addition to its grain elevator at Seventh street and Kansas avenue, Kansas City, Kans., which is under lease to Simonds-Shields-Lonsdale Grain Company.

DELAWARE & HUDSON.—The Public Service Commission of New York has approved bids submitted by the Wilson & English Construction Company, New York, for the elimination of the North Park avenue grade crossing of this company's lines, Cambridge, N. Y., and by the James A. McCormick Company, Easton, Pa., for work in connection with the elimination of the Mill road, Fort Hunter road and Campbell avenue crossings in Rotterdam, N. Y., and Schenectady. In both cases, the railroad has been directed to award the necessary contract and to proceed with the work.

DELAWARE, LACKAWANNA & WESTERN.—This company is receiving bids for the necessary construction incident to the elimination of its grade crossings on the Whitney Point-Castle Creek (Adams street) county highway No. 1450-A, 1.3 miles south of Whitney Point, N. Y., and on the Gulf Bridge county highway No. 274, at Chenango Forks, N. Y. In both cases the crossings will be eliminated by carrying the highways over the railway.

FORT WORTH & DENVER NORTHERN.—This company has applied to the Interstate Commerce Commission for authority to build two lines in Gray county, Tex., one of 7 and the other of 3.41 miles.

LEHIGH & HUDSON RIVER.—The Scotts Corners-Burnside county highway crossing of this company's line in Maybrook, N. Y., has been placed on the list of crossings to be considered for elimination during 1931 by the Public Service Commission of New York, in order that its removal might be considered in the same proceeding with the proposed elimination of a New York, New Haven & Hartford grade crossing at the same point.

LONG ISLAND.—The Public Service Commission of New York has ordered the reconstruction of the bridge carrying this company's tracks over the Roslyn-Mineola county highway near Roslyn station, North Hempstead, N. Y. The new structure will be of the deck plate girder type, will provide for a 50-ft. roadway and will cost about \$82,200.

NEW YORK CENTRAL.—The Public Service Commission of New York has approved plans showing land to be acquired and preliminary work to be carried out to facilitate grade crossing elimination, yard consolidation and provision of new terminal facilities in Syracuse, N. Y. The Commission has also approved plans and specifications for work in connection with elimination of the West Henrietta road crossing of the New York Central on the Rochester-West Henrietta county highway one mile west of Ridgeland, N. Y.

NEW YORK CENTRAL.—The New York Public Service Commission has designated for elimination grade crossings at Caroline, Bellinger, Prospect, Main, Washington and King streets and Protection avenue, all in Herkimer, N. Y. These crossings will be removed by re-locating the railroad tracks from a point about 8,500 feet east of the present passenger station to a point about 10,160 feet west of the station, at a total estimated cost of approximately \$2,665,600. The project will involve the construction of five new bridges and of a new station to be located about 500 feet east of Mohawk street on the south side of the new track location. The railroad company is to prepare necessary plans and specifications. The commission has also approved the bid submitted by the Walsh Construction Company of Syracuse, N. Y., for the elimination of a New York Central grade crossing on the Junius-Waterloo highway, just south of Junius station, Phelps, N. Y.; has amended its order for the reconstruction of an overcrossing two miles west of Churchville, N. Y., and has reopened proceedings for the elimination of crossings at Walden avenue and Union road, Cheektowaga, N. Y.

NEW YORK, NEW HAVEN & HARTFORD.—This company has authorized the elimination of grade crossings at Windsor, Avon and Russell streets, Hartford, Conn. The railroad's portion of the cost of this work is estimated at \$837,700. A contract has been awarded to Charles Smith & Sons, Inc., Derby, Conn., for the construction of a new highway bridge and elimination of the so-called "Sink Hole Crossing," Torrington, Conn., at a cost of about \$30,000.

PENNSYLVANIA.—This company plans to award contracts before May 1 for the elevation of the Englewood Connecting Railway, 2.34 miles long, which connects the Panhandle and the Fort Wayne lines of the Pennsylvania, and parallels Fifty-ninth street in Chicago, between Hamilton and Stewart avenues. This project involves the construction of 32 grade separation structures between Halsted street and Hoyne avenue and on adjoining wye tracks, at a total cost of about \$3,285,000.

ST. LOUIS SOUTHWESTERN.—This company has withdrawn its application to the Interstate Commerce Commission for a certificate for the construction of a line from Van, Tex., to Van Junction.

SOUTHERN.—This company has let to the Vang Construction Company, Cumberland, Md., a contract, totaling \$50,000, for the construction of two piers at Augusta, Ga.

SOUTHERN PACIFIC (Gulf & West Texas).—This company plans the construction of this recently acquired subsidiary, from Fredericksburg, Tex., to Brady, 69 miles, within the near future. Construction of the proposed line between Eden, Tex., and San Angelo, will not be undertaken within the immediate future.

TORONTO, HAMILTON & BUFFALO.—A general contract for grade separation at Hamilton, Ont., for which 11 bids were received, has been awarded to the Dominion Construction Company, Ltd. This contract covers necessary excavation; the construction of embankments; the installation of masonry; the erection of structural steel for the elevation of the roadbed and tracks of the railroad; the adjustment of siding connections for the construction of eight street underpasses and one passenger subway underpass; the depression of street surfaces, and adjustment of all sewers and underpasses for a distance of about one mile through the city of Hamilton. The adjustment of the sewers and excavation and embankment work have been sublet to A. Cope & Sons, Ltd., Hamilton, while the steel bridge work has been sublet to the Hamilton Bridge Company, Ltd., also of Hamilton. This elimination work is part of the railroad company's general improvement program at Hamilton, which involves, in addition to the grade separations, the construction of a station with a 10 story head-house for office purposes, contracts for which have not yet been awarded. The entire cost of the project including land acquired for the purpose, is estimated at approximately \$3,750,000.

UNION PACIFIC.—A contract for the construction of a yard office and an interlocking tower at Cheyenne, Wyo., in connection with the construction of new yard facilities at that point, has been let to Ryberg & Sorenson, Salt Lake City, Utah, at a cost of about \$50,000.

WINTER GARDEN BELT.—This company has applied to the Interstate Commerce Commission for authority to construct a new line from Eagle Pass, Tex., to Asherton, 70 miles.

SUPER-POWER

NEEDS SUPER MATERIALS



LOCOMOTIVE DESIGNERS get 1,000 H. P. per axle from the modern locomotive. Power unthought of a few years ago.

- But this power must be generated and then transmitted. This calls for modern materials—alloy steels and irons—with new qualities of strength, toughness and wear resistance.

- For years, metallurgists of the Republic Steel Corporation have been aware of the trend in equipment design and have been working out suitable Agathon Steels for the new conditions.

- Whether it be springs, rods, axles, motion work

pins, tubes or staybolts, Republic Steel Corporation has carefully worked out a material specifically to meet the conditions of modern railroading.

- A material that will be stronger and last longer.

- Wherever you use iron or steel, consult Republic Steel Corporation for better materials.

Central Alloy Division

REPUBLIC STEEL CORPORATION

Massillon, Ohio



Financial

ATLANTA & ST. ANDREWS BAY.—Operation.—The Interstate Commerce Commission has authorized this company to operate a line of railroad about 1½ miles long and including pier tracks to be constructed by the municipality of Panama City, Fla., and to operate over the line of railroad extending from Milville Junction, Fla., to the dock at Bay Harbor, 4.6 miles.

BIG SANDY & CUMBERLAND.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon its narrow-gage line from Hurley, Va., to Grundy, 15.7 miles.

BROOKSVILLE & OHIO RIVER.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Brooksville, Ky., to Wellsburg, 10 miles.

CHICAGO & NORTH WESTERN.—Abandonment.—The Interstate Commerce Commission has authorized this company to abandon a branch line extending from Stiles Junction, Wis., southward 2.4 miles.

CHICAGO & WESTERN INDIANA.—New Director.—Charles T. O'Neal, president of the Chicago & Eastern Illinois, has been elected a member of the board of directors of this company and the Belt Railway of Chicago to succeed Thomas C. Powell, chairman of the board of the C. & E. I.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—Bonds.—The Interstate Commerce Commission has authorized this company to issue \$1,250,000 of 6 per cent first and general mortgage bonds, series B, to be pledged and repledged as collateral security for short term notes.

COLORADO & SOUTHERN.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon a line from Coalton, Colo., to Boulder, 7.64 miles.

GEORGIA SOUTHERN & FLORIDA.—Annual Report.—The annual report of this company for 1930 shows net income, after interest and other charges, of \$65,947, as compared with net income in 1929 of \$103,726. Selected items from the Income Statement follow:

| | 1930 | 1929 | Increase or Decrease |
|-----------------------------|-----------|-----------|----------------------|
| Average Mileage Operated | 397.73 | 397.73 | ..... |
| RAILWAY OPERATING REVENUES | 3,563,709 | 4,226,394 | -762,685 |
| Maintenance of way | 668,628 | 865,874 | -197,246 |
| Maintenance of equipment | 786,196 | 996,907 | -210,711 |
| Transportation | 1,334,529 | 1,568,521 | -233,992 |
| TOTAL OPERATING EXPENSES | 2,903,705 | 3,590,317 | -686,612 |
| NET REVENUE FROM OPERATIONS | 660,004 | 636,077 | + 23,927 |
| Railway tax accruals | 281,961 | 278,168 | + 3,793 |
| Railway operating income | 373,567 | 427,623 | - 54,056 |
| Hire of Equipment | 2,952 | 74,792 | - 71,840 |
| Joint facility rents | 385 | 2,819 | - 2,434 |

| | 1930 | 1929 | Increase or Decrease |
|---|---------|---------|----------------------|
| Non-operating income | 31,510 | 20,258 | + 11,252 |
| GROSS INCOME | 405,077 | 447,882 | - 42,805 |
| Interest on funded debt | 296,573 | 297,144 | - 571 |
| TOTAL DEDUCTIONS FROM GROSS INCOME | 333,391 | 337,817 | - 4,426 |
| NET INCOME | 65,947 | 103,726 | - 37,779 |
| Disposition of net income: | | | |
| Dividends of 5% on First Preferred Stock | 34,200 | 34,200 | ..... |
| Dividends of 2½% on Second Preferred Stock (5% in 1929) | 27,100 | 54,100 | ..... |
| Balance | 4,647 | 15,326 | ..... |

Figures in italics denote debits, credits or decreases.

ILLINOIS CENTRAL.—Annual Report.—The annual report of this road for 1930 shows net income, after interest and other charges, of \$9,289,590 as compared with net income of \$13,520,383 in 1929. Selected items from the Income Statement follow:

| | 1930 | 1929 | Increase or Decrease |
|------------------------------------|-------------|-------------|----------------------|
| Average Mileage operated | 6,711.08 | 6,721.09 | - 10.01 |
| RAILWAY OPERATING REVENUES | 148,455,904 | 180,976,182 | -32,520,277 |
| Maintenance of way | 17,013,643 | 23,764,278 | - 6,750,634 |
| Maintenance of Equipment | 30,858,545 | 41,160,186 | -10,301,640 |
| Transportation | 56,210,800 | 64,512,117 | - 8,301,316 |
| TOTAL OPERATING EXPENSES | 113,813,197 | 139,430,071 | -25,616,874 |
| Operating ratio | 76.66 | 77.04 | - .38 |
| NET REVENUE FROM OPERATIONS | 34,642,707 | 41,546,110 | - 6,903,403 |
| Railway tax accruals | 9,141,528 | 12,448,014 | - 3,306,485 |
| Railway operating income | 25,457,255 | 29,044,098 | - 3,586,842 |
| Hire of freight cars | 2,497,706 | 2,266,327 | + 231,378 |
| Joint Facility rents | 486,697 | 655,248 | - 168,551 |
| NET RAILWAY OPERATING INCOME | 23,596,520 | 27,743,259 | - 4,146,738 |
| Non-operating income | 3,849,211 | 4,605,739 | - 756,528 |
| GROSS INCOME | 27,445,732 | 32,348,998 | - 4,903,266 |
| Rent for leased roads | 1,719,509 | 2,377,386 | - 657,877 |
| Interest on funded debt | 15,808,726 | 16,044,597 | - 235,871 |
| TOTAL REDUCTIONS FROM GROSS INCOME | 18,156,141 | 18,828,615 | - 672,473 |
| NET INCOME | 9,289,590 | 13,520,383 | - 4,230,793 |

INTERSTATE.—Excess Income.—The Interstate Commerce Commission has issued a tentative recapture report finding that this company had recapturable excess income for the years 1920 to 1927 amounting to \$396,692.

LOUISVILLE, ARKANSAS & TEXAS.—Trackage Rights.—The Interstate Commerce Commission upon rehearing has rescinded its authorization permitting this company to operate under "so-called trackage rights" over the St. Louis South-

western of Texas between Greenville, Tex., and Dallas. The agreement provided for the extension of the railroad's freight service into Dallas, not by its own operations but by those of the Cotton Belt which would supply all facilities, train crews, clerical work, etc.

LOUISVILLE & NASHVILLE.—Abandonment.—The Interstate Commerce Commission has authorized this company to abandon a branch line which extends from a connection with its Knoxville division eastward to Wilton No. 2, 4 miles, in Whitley and Knox Counties, Ky.

MINNEAPOLIS & RAINY RIVER.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon its entire line, from Deer River, Minn., to Craig, 43 miles, and a branch from Alder to Wirt, 20 miles, stating that the timber supply which it was built to serve has become exhausted.

MINNEAPOLIS, ANOKA & CUYUNA RANGE.—Stock.—The Interstate Commerce Commission has authorized this company to issue 450 shares of common stock without par value to be sold at not less than \$100 per share and the proceeds used for the acquisition of its line of railroad and additions and betterments.

MISSOURI-KANSAS-TEXAS.—New Directors.—R. G. Babage, John W. Hanes and Eugene W. Stetson, of New York, have been elected members of the board of directors to succeed J. B. Barnes, E. H. Pierce and the late Arthur W. Thompson, respectively.

MOBILE & OHIO.—Annual Report.—The annual report of this company for 1930 shows net deficit, after interest and other charges, of \$930,553, as compared with a net income of \$903,131 in 1929. Selected items from the Income Statement follow:

| | 1930 | 1929 | Increase or Decrease |
|------------------------------------|------------|------------|----------------------|
| Average Mileage operated | 1,157.41 | 1,159.14 | - 1.73 |
| RAILWAY OPERATING REVENUES | 14,029,114 | 17,315,531 | -3,286,417 |
| Maintenance of way | 2,256,959 | 2,590,439 | - 333,480 |
| Maintenance of Equipment | 2,704,327 | 3,260,903 | - 556,576 |
| Transportation | 5,449,674 | 6,158,894 | - 709,220 |
| TOTAL OPERATING EXPENSES | 11,647,683 | 13,269,311 | -1,621,628 |
| Operating ratio | 83.03 | 76.63 | + 6.40 |
| NET REVENUE FROM OPERATIONS | 2,381,430 | 4,046,220 | -1,664,790 |
| Railway tax accruals | 975,393 | 1,023,318 | - 47,925 |
| Railway operating income | 653,325 | 2,460,150 | -1,806,825 |
| Hire of equipment | 442,879 | 260,534 | + 182,345 |
| Joint Facility rents | 303,142 | 299,772 | + 3,370 |
| Non-operating income | 139,543 | 159,237 | - 19,694 |
| GROSS INCOME | 792,869 | 2,619,388 | -1,826,519 |
| Interest on funded debt | 1,386,647 | 1,358,175 | + 28,472 |
| TOTAL DEDUCTIONS FROM GROSS INCOME | 1,692,163 | 1,696,415 | - 4,252 |
| NET INCOME | * 930,553 | 903,131 | -1,833,684 |

* Deficit.

Continued on Next Left Hand Page

Some Locomotives are "Touchy"

about supplying the amount of steam they are called upon to generate and will "lay down" every time they are pushed beyond the limit.

FIREBARS and the

BETTER FIRES

that result, increase the steaming capacity of locomotives to a point which insures an ample reserve when required. The savings in fuel pay a big return on the investment.

FIREBAR CORPORATION

CLEVELAND

OHIO



MISSOURI SOUTHERN.—Notes.—The Interstate Commerce Commission has authorized this company to issue short term notes for \$150,000 to reimburse stockholders for advances made for the construction of an extension and additions and betterments.

NEW YORK, CHICAGO & ST. LOUIS.—Trackage Rights.—The Interstate Commerce Commission has authorized this company to operate under trackage rights over a short section of the Erie to serve a proposed food terminal in Buffalo, N. Y.

NEW YORK, ONTARIO & WESTERN.—Annual Report.—The annual report of this company for 1930 shows net deficit, after interest and other charges, of \$260,459, as compared with net deficit in 1929 of \$250,045. Selected items from the Income Statement follow:

| | 1930 | Increase or decrease |
|--|------------|----------------------|
| RAILWAY OPERATING REVENUES | 10,417,387 | —1,795,209 |
| Maintenance of way... | 1,330,502 | — 432,377 |
| Maintenance of Equipment | 2,058,228 | — 330,796 |
| Transportation | 4,478,945 | — 884,666 |
| TOTAL OPERATING EXPENSES | 8,464,779 | —1,737,548 |
| Operating ratio | 81.26 | — 2.28 |
| NET REVENUE FROM OPERATIONS | 1,952,608 | + 57,660 |
| Railway tax accruals.. | 489,372 | + 1,270 |
| Railway operating income | 1,462,390 | — 59,326 |
| Hire of freight cars—Dr. | 461,233 | — 76,914 |
| NET RAILWAY OPERATING INCOME | 883,267 | + 31,902 |
| Non-operating income.. | 391,691 | + 18,962 |
| GROSS INCOME | 1,274,958 | + 50,864 |
| Rent for leased roads.. | 227,875 | ..... |
| Interest on funded debt | 1,186,062 | + 17,004 |
| TOTAL DEDUCTIONS FROM GROSS INCOME | 1,535,417 | + 61,278 |
| NET DEFICIT | 260,459 | — 10,414 |

NORTHERN ALABAMA.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon its Riverton branch, from Riverton, Ala., to Riverton Junction, 10.87 miles.

NORTHERN PACIFIC.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Great Northern Transfer, Mont., to Queen Siding, 19.61 miles.

PITTSBURGH & SHAWMUT.—Excess Income.—The Interstate Commerce Commission has issued a tentative recapture report finding that this company had recapturable excess income for the last four months of 1920 amounting to \$74,509.

PITTSBURGH, CHARTIERS & YOUGHIOGHENY.—Annual Report.—The annual report of this company for 1930 shows net income, after interest and other charges, of \$140,406, as compared with net income of \$228,968 in 1929. Selected items from the Income Statement follow:

| | 1930 | 1929 | Increase or decrease |
|----------------------------------|---------|---------|----------------------|
| Average Mileage operated | 22.71 | 22.71 | ..... |
| RAILWAY OPERATING REVENUES | 484,203 | 636,970 | —152,766 |

| | 1930 | 1929 | Increase or decrease |
|---|---------|---------|----------------------|
| Maintenance of way | 70,767 | 64,737 | + 6,030 |
| Maintenance of Equipment | 35,235 | 47,705 | — 12,470 |
| Transportation | 189,060 | 235,251 | — 46,190 |
| TOTAL OPERATING EXPENSES | 344,808 | 394,398 | — 49,590 |
| Operating ratio..... | 71.21 | 61.92 | + 9.29 |
| NET REVENUE FROM OPERATIONS | 139,394 | 242,571 | —103,176 |
| Railway tax accruals | 36,097 | 46,570 | — 10,473 |
| Railway operating income | 103,231 | 195,998 | — 92,767 |
| Hire of Equipment—Net Cr. | 11,998 | 3,920 | + 8,078 |
| Joint Facility rents—Net Dr. | 10,617 | 10,314 | + 303 |
| NET RAILWAY OPERATING INCOME | 104,612 | 189,605 | — 84,992 |
| Non-operating income | 39,957 | 43,737 | — 3,780 |
| GROSS INCOME | 144,570 | 233,343 | — 88,772 |
| TOTAL DEDUCTIONS FROM GROSS INCOME | 4,164 | 4,374 | — 210 |
| NET INCOME | 140,406 | 228,968 | — 88,562 |
| Disposition of net income: | | | |
| Dividend appropriations of income..... | 111,200 | 111,200 | ..... |
| Credit balance transferred to Profit and Loss | 29,206 | 117,768 | — 88,562 |

ST. LOUIS-SAN FRANCISCO.—Bonds.—This company has applied to the Interstate Commerce Commission for authority to issue and pledge \$1,295,000 of prior lien mortgage 5 per cent bonds and \$2,074,000 consolidated mortgage 4½ per cent bonds, to be pledged as collateral for short-term notes.

SEABOARD AIR LINE.—Abandonment.—The receivers have applied to the Interstate Commerce Commission for authority to abandon the line from Lawrenceville, Ga., to Loganville, 9.74 miles.

SEABOARD AIR LINE.—Receivers' Certificates.—The receivers have applied to the Interstate Commerce Commission for authority to issue and sell \$4,000,000 of 5 per cent one-year receiver's certificates, to be sold to Dillon, Read & Co., and Ladenburg, Thalman & Co., at 98¾.

SOUTHERN PACIFIC.—Official Headquarters Moved.—The official headquarters of this company have been moved from Anchorage, Ky., to Spring Station, Ky., an unincorporated village in Woodford county, following action taken at the annual meeting at Anchorage on April 8. Hugh Neill, vice-president and secretary of the Southern Pacific, has been elected a member of the board of directors, succeeding G. M. Thornton, who has resigned.

SUGAR LAND.—Excess Income.—The Interstate Commerce Commission has issued a tentative recapture report finding that this company had recapturable excess income for the years 1910 to 1925 amounting to \$201,269.

Average Prices of Stocks and of Bonds

| | Apr. 14 | Last week | Last year |
|--|---------|-----------|-----------|
| Average price of 20 representative railway stocks. | 79.36 | 81.34 | 133.94 |
| Average price of 20 representative railway bonds.. | 91.69 | 91.93 | 93.45 |

Railway Officers

EXECUTIVE

George A. Gaston, vice-president of the Central Vermont, in charge of the property of that road, has resigned, and **J. W. Redmond** has been appointed vice-president and general counsel.

A. D. McDonald, president of the Southern Pacific lines in Texas and Louisiana, **H. M. Lull**, executive vice-president, **H. B. Johnson**, controller, **G. R. Cottingham**, secretary and auditor, and **O. M. Longnecker**, treasurer, have been elected to similar positions on the Gulf & West Texas. **G. B. Goodloe**, superintendent of the Houston division, at San Antonio, Tex., has also been elected vice-president and assistant secretary-treasurer of the Gulf & West Texas. **J. A. Simpson**, treasurer of the Southern Pacific Company, has been elected assistant treasurer of the Gulf & West Texas.

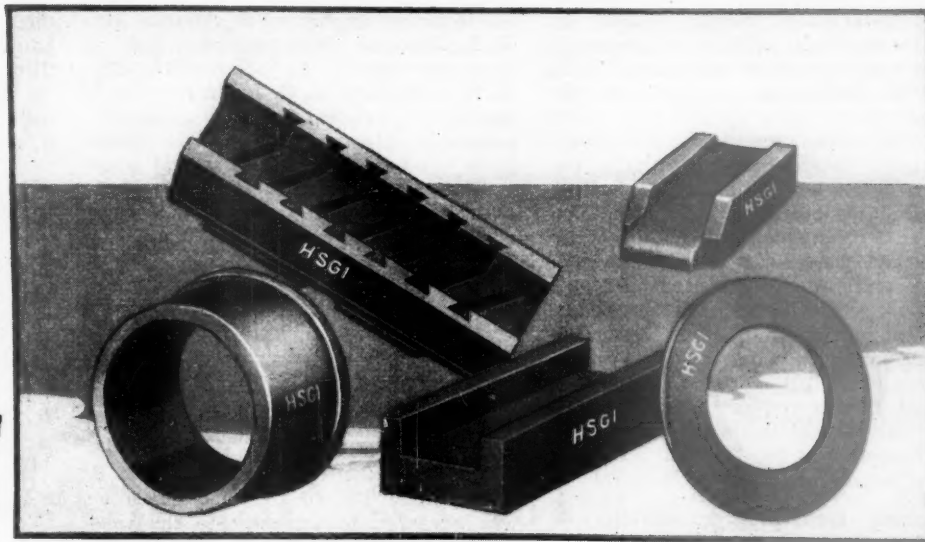
OPERATING

J. S. Bassett, trainmaster of the Wagoner district of the Central division of the Missouri Pacific, with headquarters at Van Buren, Ark., has been appointed acting superintendent of the Little Rock division, with headquarters at McGehee, Ark. **R. H. Gragg** has been appointed acting trainmaster of the Louisiana division, with headquarters at Monroe, L., succeeding **B. C. Murphy**, who has been transferred to the Wagoner district of the Central division as acting trainmaster to replace Mr. Bassett.

H. J. Roth, superintendent of the Indiana division of the Illinois Central, with headquarters at Mattoon, Ill., has been transferred to the Wisconsin division, with headquarters at Freeport, Ill., succeeding **J. B. Hamilton**, who has been appointed superintendent of freight service, with headquarters at Chicago. Mr. Hamilton succeeds **R. W. Watts**, who has been appointed trainmaster on the Chicago Terminal division. The Indiana division has been abolished and the line between Peoria, Ill., and Evansville, Ind., has been added to the Springfield division, while the line between Effingham, Ill., and Indianapolis, Ind., has been added to the Illinois division.

Bertram G. Cross, who has been promoted to superintendent of the Missouri River division of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Bismark, N. D., has been connected with that railroad for 26 years. He was born at Minneapolis, Minn., on September 3, 1888, and attended the grade and high schools of that city from 1894 to 1904. Mr. Cross obtained his first railway experience as a passenger brakeman on the Soo Line

Continued on Next Left Hand Page



The Foundation of Better Performance

APPLICATION of HUNT-SPILLER Air Furnace GUN IRON Crosshead Shoes, Outer Rod Bushings, Pedestal Shoes and Wedges is a reliable foundation for dependable performance and assists in eliminating pounds which develop in crossheads, rod bearings and driving boxes. The stress created by these titanic blows are directly responsible for many expensive failures and high repair costs. The quality of the wearing parts is a very important factor.

The resistance of HUNT-SPILLER Air Furnace GUN IRON to frictional wear and shock insures greater mileage between renewals, minimum roundhouse attention, and a big savings in maintenance costs.

HSGI

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Cylinder Bushings
Cylinder Packing Rings
Pistons or Piston Bull Rings
Valve Packing Rings
Valve Bull Rings
Crosshead Shoes
Hub Liners
Shoes and Wedges
Floating Rod Bushings

Parts Finished for
Application

Dunbar Sectional Type
Packing
Duplex Sectional Type
Packing
(Duplex Springs for Above
Sectional Packing)
Cylinder Snap Rings
Valve Rings All Shapes

HUNT-SPILLER MFG. CORPORATION
J.G. Platt, Pres. & Gen. Mgr. V.W. Ellet, Vice-President

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383 Dorchester Ave.

South Boston, 27, Mass.

Canadian Representative: Joseph Robb & Co., Ltd., 997 Aqueduct St., Montreal, P. Q.

Export Agent for Latin America:

International Rwy. Supply Co., 30 Church Street, New York, N. Y.

Air Furnace **HUNT-SPILLER
GUN IRON**

on March 3, 1905, and a year later he was transferred to freight service. In 1909 he was advanced to conductor, a position he occupied until April, 1918, when he enlisted as a private in the United States Engineer Corps. He served overseas with the Sixtieth Engineers and was promoted to master engineer, junior grade, on August 1, 1918. In April, 1919, he returned to the Soo Line as a conductor, after his discharge from the Army, and on December 1, 1924, he was advanced to special representative in the office of the president. On May 15, 1928, he was appointed trainmaster at Fond du Lac, Wis., where he remained until April 1, 1929, when he was transferred to Stevens Point, Wis. Mr. Cross' further promotion to superintendent of the Missouri River division became effective on March 1.

Edmund Deschenes, comptroller of the Central Vermont, has in addition been appointed manager in charge of the operation of that road's property, with headquarters as before at St. Albans, Vt. Mr. Deschenes was born at St. Albans, on September 7, 1878, and received a public school education. He began his railroad career in March, 1893, as a messenger with the Central Ver-



Edmund Deschenes

mont. Mr. Deschenes was employed in various branches of the accounting department until October, 1913, serving in the capacities of clerk in charge of freight accounts, traveling auditor, chief clerk of passenger accounts, and chief clerk to auditor. From October, 1913, to July, 1918, he held the position of auditor, and from July, 1918, to date, he served as general auditor and comptroller. In addition to his present duties as comptroller and manager, he will also be in charge of the Central Vermont accounting department.

TRAFFIC

Carl F. Rank, manager of mail and express traffic, Chicago, Milwaukee, St. Paul & Pacific, has been appointed manager of the mail, express, baggage and milk department with headquarters as before at Chicago.

E. N. Aiken, general passenger agent of the Southern, has been appointed as-

sistant passenger traffic manager, with headquarters as before at Atlanta, Ga. **V. L. Estes** has been appointed general passenger agent at Jacksonville, Fla. **E. E. Barry** and **E. G. Irwin** have been appointed assistant general passenger agents at Atlanta, Ga., and **R. H. Hamilton** has been assigned a similar position at Washington, D. C. **J. T. Hellman** has been appointed district passenger agent at Philadelphia, Pa.

Harold K. Faye, who has resigned as freight traffic manager of the Western Pacific to become traffic manager of the Phelps Dodge Corporation at New York, has been engaged in railroad service for 27 years. He was born at Aurora, Ill., in January, 1885, and obtained his first railway experience in the traffic department of the Chicago, Burlington & Quincy in 1904. In December, 1904 he was advanced to secretary to the vice-president in charge of traffic and in June 1909, was promoted to chief clerk to the vice-president. Later he was promoted to assistant in the office of the vice-president of the Burlington, where he remained until August, 1917, when he was appointed traffic manager of the Western Pacific at San Francisco, Cal. During Federal control he was also a member of the San Francisco District Freight committee and the California Export Committee. Mr. Faye's title was changed to freight traffic manager in 1919. His resignation from that position became effective on April 15.

Henry E. Poulterer, assistant general freight agent of the Union Pacific, with headquarters at Omaha, Neb., has been appointed assistant freight traffic manager of the Western Pacific, with headquarters at San Francisco, Cal., in charge of rates and divisions, effective April 20. Mr. Poulterer was born at Portland, Ore., in 1888 and attended high school in that city. He obtained his first railway experience in 1905 as a messenger on the Great Northern. In the following year he became connected with the general freight office of the Union Pacific at Portland. In 1912 he was advanced to contracting freight agent and in 1918 to traveling freight agent. He became associated with the joint traffic department of the Port and Dock Commissions of Portland in May, 1920, returning to the Union Pacific six months later as chief clerk to the assistant freight traffic manager at Omaha. Mr. Poulterer was promoted to general agent in the freight department of the Union Pacific at Kansas City, Mo., in 1925 and to assistant general freight agent at Omaha in 1927.

John F. Bon, who has been promoted to freight traffic manager of the Western Pacific, with headquarters at San Francisco, Cal., has been engaged in railway traffic work for 26 years. A native of South Dakota, he obtained his first railroad experience as a stenographer for the Union Pacific at Portland, Ore. In 1910, he entered Western Pacific service at San Francisco as secretary to the freight traffic manager. After occupying various positions in the

traffic department he was connected with the James J. Hill steamship interests at San Francisco during 1915 and 1916, and then returned to the Western Pacific during the latter part of Federal control of the railroads. He was advanced to chief clerk in the general freight de-



John F. Bon

partment, in 1920, and, in 1923, was promoted to assistant general freight agent. Mr. Bon was promoted to general freight agent on November 1, 1929, and to assistant freight traffic manager on July 1, 1930. His further promotion to freight traffic manager became effective on April 16.

ENGINEERING AND SIGNALING

C. P. Kahler, electrical engineer of the Oregon Short Line, with headquarters at Salt Lake City, Utah, has been promoted to electrical engineer of the Union Pacific System, with headquarters at Omaha, Neb.

O. V. Derr, general office engineer of the Erie, has been appointed valuation engineer, succeeding **Charles H. Moore**, and **Henry J. Stroebel**, assistant engineer in charge of order No. 3 section, has been appointed assistant valuation engineer. The headquarters of both are located at New York.

OBITUARY

Eugene O. Boyle, general agent for the Great Northern at Butte, Mont., died at his home in that city on April 8 at the age of 58 years.

John Van Buskirk, formerly mechanical engineer of the New York Central, died of heart disease at the Lutheran Hospital, New York, on April 10.

David W. Champlin, general agent for the Norfolk & Western at Richmond, Va., died of heart disease in that city on April 9, at the age of 54 years.

William J. Moffatt, assistant general passenger agent, Central region of the Canadian National, Toronto, Ont., died in a hospital in that city on April 10, following a heart attack.

Ralph W. Quackenbush, agricultural agent of the lines of the New York Central east of Buffalo, N. Y., with headquarters at Rochester, N. Y., died at Park Ridge, N. J., on April 9.

H. H. Francisco, who retired from active railway service as general agent for the Atchison, Topeka & Santa Fe at Portland, Ore., on August 1, 1930, died on April 9 near Los Angeles, Cal., from injuries received when he was struck by an electric train.

John F. McNally, assistant division superintendent on the Eastern lines of the Atchison, Topeka & Santa Fe, with

headquarters at Emporia, Kan., died on April 8 when struck by a train at Olathe, Kan. Mr. McNally, who was 69 years of age, had been in the service of the Santa Fe for 53 years.

Charles B. Eddy, who was president of the El Paso & Northeastern (now part of the Southern Pacific), from its incorporation and construction in 1897 and 1898 until 1905, with headquarters at Alamogordo, N. M., died at St. Vincent's hospital, New York, on April 13, at the age of 71 years. Following relinquishment of active interest in the El Paso & Northeastern Mr. Eddy served as vice-president of the New Mexico Midland until his death.

John H. Meyers, superintendent of the Cincinnati (Ohio) Terminal division of the Baltimore & Ohio, died at his home at Hyde Park, Cincinnati, on April 8 following a cerebral hemorrhage. Mr. Meyers was born at Remington, Ohio, in 1883, and entered the service of the Baltimore & Ohio in 1902 as a telegraph operator on the Indiana division. In 1907 he was advanced to chief clerk to the general yardmaster at Cincinnati. Later he advanced through various positions in the operating department, including those of assistant trainmaster and trainmaster at Cincinnati, and in 1920 he was promoted to superintendent of the Cincinnati Terminal division.

Annual Report

The Central Railroad Company of New Jersey— Year Ended December 31, 1930

New York, N. Y., April 9, 1931.

TO THE STOCKHOLDERS:

The Board of Directors herewith submits report of the operations and affairs of the Company as of December 31, 1930.

CORPORATE INCOME STATEMENT

For the Year Ended December 31, 1930, Compared with the Previous Year

| | 1930 | 1929 | Changes |
|---|-----------------|-----------------|---------------------|
| Railway Operating Revenues | \$51,753,822.59 | \$58,136,939.94 | Dec. \$6,383,117.35 |
| Railway Operating Expenses | 38,167,251.03 | 42,218,295.95 | Dec. 4,051,044.92 |
| Net Operating Revenue | \$13,586,571.56 | \$15,918,643.99 | Dec. \$2,332,072.43 |
| Railway Tax Accruals | \$5,038,952.31 | \$5,074,796.66 | Dec. \$35,844.35 |
| Uncollectible Railway Revenues | 5,483.21 | 10,959.30 | Dec. 5,476.09 |
| Hire of Equipment | 1,147,476.03 | 1,249,844.61 | Dec. 102,368.58 |
| Joint Facility Rents | 242,053.45 | 215,999.03 | Inc. 26,054.42 |
| Charges to Net Operating Revenues | \$6,433,965.00 | \$6,551,599.60 | Dec. \$117,634.60 |
| Net Railway Operating Income | \$7,152,606.56 | \$9,367,044.39 | Dec. \$2,214,437.83 |
| Non-Operating Income | 1,582,060.39 | 1,587,697.83 | Dec. \$5,637.44 |
| Total Income from all Sources | \$8,734,666.95 | \$10,954,742.22 | Dec. \$2,220,075.27 |
| Deductions for Rentals | \$2,707,519.63 | \$2,695,192.92 | Inc. \$12,326.71 |
| Deductions for Interest | 2,835,872.65 | 2,875,236.13 | Dec. 39,363.48 |
| Miscellaneous Tax Accruals | 342,669.90 | 325,664.59 | Inc. 17,005.31 |
| All Other Charges against Income | 14,752.30 | 15,893.88 | Dec. 1,141.58 |
| Total Deductions from Income | \$5,900,814.48 | \$5,911,987.52 | Dec. \$11,173.04 |
| Net Income | \$2,833,852.47 | \$5,042,754.70 | Dec. \$2,208,902.23 |
| Income Applied to sinking and Other Reserve Funds | 9,448.41 | 5,995.23 | Inc. 3,453.18 |
| Income Balance Transferred to Profit and Loss | \$2,824,404.06 | \$5,036,759.47 | Dec. \$2,212,355.41 |

General

OPERATIONS FOR THE YEAR: Income statement showing the results of operations for the year 1930, is shown on opposite page. Operating Revenues aggregated \$51,753,822.59, a decrease of \$6,383,117.35 or 10.98% compared with 1929. Operating expenses were \$38,167,251.03, a decrease of \$4,051,044.92 or 9.6% compared with 1929.

Operating Ratios for the years 1928, 1929 and 1930, were as follows:

Year 1928.....72.62%

Year 1929.....72.62%
Year 1930.....73.74%

FREIGHT TRAFFIC: The widespread business depression which began in the latter part of 1929, continued throughout the year 1930. This condition was most severely reflected in merchandise traffic on which there was a decrease in revenues of \$4,517,435.00, or 15.78%, compared with 1929.

Bituminous Coal traffic was slightly affected; the decrease in revenue was \$192,060.00, or 4.96%, compared with 1929.

Anthracite Coal revenues decreased \$409,500.00, or 3.26%, compared with 1929. This decrease was principally due to the mild climatic conditions which prevailed during the year, and the increasing use of substitute fuels.

PASSENGER TRAFFIC REVENUES decreased \$674,502.00, or 7.70%, compared with 1929, and is attributed to the general business depression, and the continued increase in other forms of transportation.

MAIL REVENUES aggregated \$307,102.00, a decrease of \$129,704.00, compared with 1929. Of this decrease \$115,565.00 represents a special adjustment paid by the Government in 1929 for the period May 9, 1925 to July 31st, 1928, as additional compensation.

EXPRESS REVENUES aggregated \$1,083,396.00, a decrease of \$163,428.00, or 13.10%, compared with 1929. The falling off in this traffic was also due to general business conditions.

TRACK IMPROVEMENTS: There were laid in replacement during the year:

126,505 Cross Ties.

13,257 Cubic yards of stone ballast.

65.95 Miles of main track with new steel rails.

25.58 Miles of main track with second hand rails.

0.49 Miles of side track with new rails.

32.44 Miles of side track with second hand rails.

TAXES: The taxes levied by Local, State and Federal Authorities during 1930, represent 10.40% of the Gross Operating Revenues and 39.61% of Net Operating Revenues. Taxes exceed total annual dividend payments to stockholders by 63.45%.

EQUIPMENT RETIREMENTS: Continuing the program for retirement of obsolete equipment, during the year there were retired:

14 Locomotives.

986 Freight Cars.

16 Passenger Cars.

86 Work Equipment.

NEW EQUIPMENT: During the year 1930, there was purchased and received 221 units of equipment; also to augment facilities of the Marine Repair Yard an additional Dry Dock was purchased and placed in service.

Contract for the following equipment was placed during the year under Equipment Trust of 1926, Fourth Lease, and delivery will be made in 1931:

[ADVERTISEMENT]

25 Steel Passenger Coaches
5 Steel Passenger-Baggage Cars

Additions and Betterments

ELIMINATION OF GRADE CROSSINGS AT CRANFORD, N. J.: This major project was completed in the latter part of 1930. Two highway grade crossings were eliminated by this improvement.

RETAIL COAL POCKET: The new retail coal pockets on the main line at Claremont, N. J., work on which was begun in 1929, were completed and placed in service during April, 1930.

Special Comment

HIBERNIA MINE R. R.: Through the ownership of the entire Capital Stock and with the approval of the Board of Public Utilities, the property, rights and franchises were merged with this Company effective November 25, 1930.

WHARTON AND NORTHERN R. R., MT. HOPE MINERAL R. R.: This company acquired by purchase and held as of Dec. 31, 1930—5,000 shares of Capital Stock (the

entire issue) of the Wharton & Northern R. R. and 1,093 shares of Capital Stock of Mount Hope Mineral R. R. out of a total of 1,600 shares issued and outstanding.

NEW YORK & LONG BRANCH R. R.: This company acquired by purchase and held as of Dec. 31st, 1930—\$269,000.00 par value Consolidated Mortgage 5% Gold Bonds, Series "A" due July 1st, 1979.

NEW INDUSTRIES: During the year 66 new industries were located at various points where they will be served by this company.

To the end that your company may secure as great a volume of traffic as possible, the co-operation of the stockholders is earnestly solicited, especially under prevailing conditions. In the past such interest and assistance has been very helpful.

The Management takes pleasure in expressing its appreciation to the Officers and Employees for their loyal and efficient service during the year.

Appended will be found Balance Sheet as of December 31st, 1930, and various other statements.

By Order of Board of Directors,
R. B. WHITE, President.

General Balance Sheet, December 31, 1930, Compared with December 31, 1929

| Assets | December 31 1930 | December 31 1929 | + Increase or — Decrease |
|--|---------------------|---------------------|-----------------------------|
| Investments: | | | |
| Road | \$ 95,839,571.79 | \$ 95,095,787.24 | +\$ 743,784.55 |
| Equipment | 70,198,393.57 | 69,959,974.09 | 238,419.48 |
| Total | \$166,037,965.36 | \$165,055,761.33 | +\$ 982,204.03 |
| Improvements on Leased Railway Property | \$ 13,702,758.33 | \$ 13,605,288.75 | +\$ 97,469.58 |
| Miscellaneous Physical Property | 3,488,848.47 | 3,521,820.26 | — 32,971.79 |
| Investments in Affiliated Companies: | | | |
| Stocks | 6,049,725.82 | 4,586,705.80 | + 1,463,020.02 |
| Bonds | 2,060,000.00 | 1,840,000.00 | + 220,000.00 |
| Advances | 1,976,748.87 | 3,506,441.83 | — 1,529,692.96 |
| Notes and Mortgages .. | 240,000.00 | 240,000.00 | ..... |
| Other Investments: | | | |
| Stocks | 20,120.90 | 20,120.90 | ..... |
| Bonds | 9,234,080.31 | 9,712,847.50 | — 478,767.19 |
| Miscellaneous | 2,950.00 | 2,950.00 | ..... |
| Total | \$ 36,775,232.70 | \$ 37,036,175.04 | — \$ 260,942.34 |
| Current Assets: | | | |
| Cash | \$ 1,918,750.53 | \$ 2,721,349.49 | — \$ 802,598.96 |
| Special Deposits | 809,962.90 | 41,744.95 | + 768,217.95 |
| Loans and Bills Receiv- able | 1,015.90 | 1,100,306.98 | — 1,099,291.08 |
| Traffic and Car Service Balances Receivable .. | 854,157.69 | 1,330,853.62 | — 476,695.93 |
| Net Balance Receivable from Agents and Con- ductors | 378,460.08 | 577,361.24 | — 198,901.16 |
| Miscellaneous Accounts Receivable | 1,509,622.40 | 1,530,233.85 | — 20,611.45 |
| Material and Supplies .. | 2,852,052.46 | 2,740,475.85 | + 111,576.61 |
| Interest and Dividends Receivable | 204,290.43 | 164,355.43 | + 39,935.00 |
| Total | \$ 8,528,312.39 | \$ 10,206,681.41 | — \$1,678,369.02 |
| Deferred Assets: | | | |
| Working Fund Advances \$ | 108,129.33 | \$ 106,684.00 | +\$ 1,445.33 |
| Insurance and Other Funds | 263,911.82 | 175,584.41 | + 88,327.41 |
| Other Deferred Assets .. | 163,369.82 | 137,253.39 | + 26,116.43 |
| Total | \$ 535,410.97 | \$ 419,521.80 | +\$ 115,889.17 |
| Unadjusted Debits: | | | |
| Rents and Insurance Pre- miums Paid in Ad- vance | \$ 811,424.61 | \$ 733,312.75 | +\$ 78,111.86 |
| Other Unadjusted Debits .. | 3,475,498.59 | 3,035,370.81 | + 440,127.78 |
| Securities Issued or As- sumed—Unpledged .. | 1,474,000.00 | 1,674,000.00 | — 200,000.00 |
| Total | \$ 5,760,923.20 | \$ 5,442,683.56 | +\$ 318,239.64 |
| Grand Total | \$217,637,844.62 | \$218,160,823.14 | — \$ 522,978.52 |
| Profit and Loss December 31, 1930 | | | |
| Credit Balance January 1, 1930 | \$26,116,746.32 | | |
| Credit Balance transferred from Income Account | 2,824,404.06 | | |
| Unrefundable Overcharges | 10,124.15 | | |
| Donations | 169,764.08 | | |
| Miscellaneous Credits | 562,977.08 | | |
| Profit on Road and Equipment Sold | 5,593.79 | | |
| | \$29,350,081.32 | | |
| Less: | | | |
| Dividend Appropriations of Surplus | \$3,292,416.00 | | |
| Surplus Appropriated for Investment in Physical Property | 26,333.82 | | |
| Debt Discount Extinguished through Sur- plus | 5,829.82 | | |
| Loss on Retired Road and Equipment .. | 543,278.88 | | |
| Miscellaneous Debits | 50,686.25 | | |
| | 3,865,877.13 | | |
| Credit Balance December 31, 1930 | \$25,484,204.19 | | |
| Liabilities | | | |
| Stock: | | | |
| Capital Stock, Common— | | | |
| Authorized \$30,000,000.00 | | | |
| Not Issued 2,563,200.00 | | | |
| Outstanding | \$ 27,436,800.00 | \$ 27,436,800.00 | ..... |
| Long Term Debt: | | | |
| Funded Debt Unmatured, Equipment Obligations in Co.'s Treasury | \$ 400,000.00 | \$ 600,000.00 | — \$ 200,000.00 |
| Equipment Obligations with Public | 8,800,500.00 | 8,776,000.00 | + 24,500.00 |
| Mortgage Bonds in Co.'s Treasury | 1,074,000.00 | 1,074,000.00 | ..... |
| Mortgage Bonds with Public | 48,924,000.00 | 48,924,000.00 | ..... |
| Total | \$ 59,198,500.00 | \$ 59,374,000.00 | — \$ 175,500.00 |
| Current Liabilities: | | | |
| Loans and Bills Payable .. | \$ 500,000.00 | ..... | +\$ 500,000.00 |
| Traffic and Car Service Balances Payable | 1,470,740.73 | \$ 1,782,828.73 | — \$ 312,088.00 |
| Audited Accounts and Wages Payable | 3,012,130.81 | 3,533,653.33 | — 521,522.52 |
| Miscellaneous Accounts Payable | 23,024.20 | 970.95 | + 22,053.25 |
| Interest Matured Unpaid .. | 870,723.33 | 874,565.00 | — 3,841.67 |
| Dividends Matured Un- paid | 54,574.50 | 48,042.50 | + 6,532.00 |
| Funded Debt Matured Unpaid | 9,831.60 | 9,831.60 | ..... |
| Unmatured Dividends De- clared | 1,097,472.00 | 1,097,472.00 | ..... |
| Unmatured Interest Ac- rued | 162,602.10 | 158,274.15 | + 4,327.95 |
| Unmatured Rents Ac- rued | 9,656.75 | 4,985.00 | + 4,671.75 |
| Other Current Liabilities | 5,804.26 | 14,145.18 | — 8,340.92 |
| Total | \$ 7,216,560.28 | \$ 7,524,768.44 | — \$ 308,208.16 |
| Deferred Liabilities: | | | |
| Other Deferred Liabilities \$ | 128,800.03 | \$ 152,816.51 | — \$ 24,016.48 |
| Unadjusted Credits: | | | |
| Tax Liability | \$ 221,731.61 | \$ 507,989.44 | — \$ 286,257.83 |
| Premium on Funded Debt | 14,204.80 | ..... | + 14,204.80 |
| Insurance and Casualty Reserves | 239,580.95 | 151,953.54 | + 87,627.41 |
| Accrued Depreciation— Equipment | 29,670,307.81 | 28,405,214.41 | + 1,265,093.40 |
| Accrued Depreciation— Road | 421,410.00 | 280,940.00 | + 140,470.00 |
| Other Unadjusted Credits | 27,047.05 | 136,134.58 | — 109,087.53 |
| Total | \$ 30,594,282.22 | \$ 29,482,231.97 | +\$ 1,112,050.25 |
| Corporate Surplus: | | | |
| Additions to Property through Income and Surplus | | | |
| Investment in Road and Equipment | \$ 55,999,772.49 | \$ 56,588,428.42 | — \$ 588,655.93 |
| Improvements on Leased Railway Property | 11,577,848.71 | 11,484,829.66 | + 93,019.05 |
| Investment in Miscel- laneous Physical Property | 1,076.70 | 201.82 | + 874.88 |
| Total | \$ 67,578,697.90 | \$ 68,073,459.90 | — \$ 494,762.00 |
| Profit and Loss: | \$ 25,484,204.19 | \$ 26,116,746.32 | — \$ 632,542.13 |
| Grand Total | \$217,637,844.62 | \$218,160,823.14 | — \$ 522,978.52 |

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